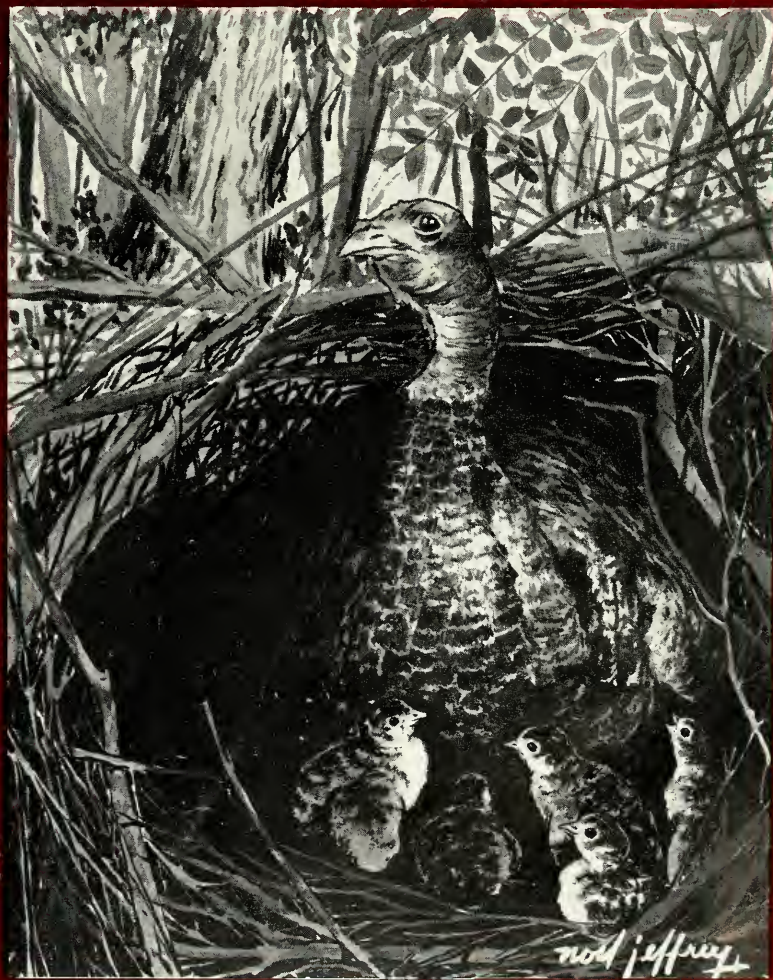


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MAY-JUNE, 1962



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ERNEST S. CLEMENTS
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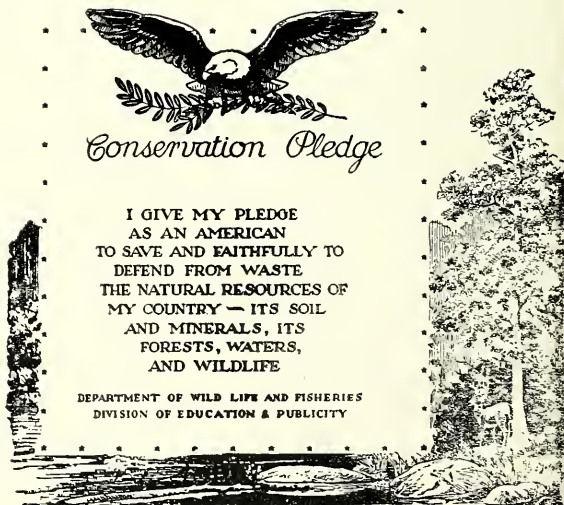
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COVER

Wild turkey hen with her brood. A scene the likes of which can be found on many of our Louisiana game preserves today.

By Ernest S. Clements

*Commissioner of Wild Life and Fisheries
of Louisiana*

FISH for stocking are priceless in Louisiana because they are an investment to assure outdoor recreation, thrills and relaxation for the men, women, boys and girls of this state, a heritage that must be preserved for our future generations. All children should know the joy of paddling in clear water, sailing a boat, camping out and cooking over an open fire . . . and they should also have the chance to catch fish.

If they are to continue to have that chance there are two very vital things that must be kept constantly in mind; the need for planting new stock is a need that is never filled, and wanton destruction by greedy violators must be stopped by punishment as severe as their depredations. Neither should any possibility be overlooked when it comes to obtaining fish for restocking in other waters.

Since this department began its restocking program in 1948 more than six million game fish have been rescued from borrow pits, flooded ditches and overflowed flats, and placed in the streams, lakes and bayous throughout the state . . . a new supply of fishing thrills for young and old from every walk of life.

That this restocking program has had an amazing effect on fishing generally throughout Louisiana is borne out by reports from every section of the state . . . reports to the effect that in a great many years fishing has never been better. Bass, perch, bream, and blue gills are all going into the fishermen's creel in increased numbers and sizes from waters that formerly had been said to be "fished out", so that even dyed-in-the-wool critics of any restocking program are forced to admit that our fish restoration work is paying off.

Each spring millions of spawning fish follow overflow waters into smaller streams, flooded flats and swollen ditches. Here they deposit their eggs, and drift back down with the receding waters. In the pools, borrow pits and smaller streams the warm waters and lack of predation assures an extremely high hatching percentage, and here is a resource of fish, perfect for restocking, that would go to waste were it not for the efforts of the fish rescue crews of the Department of Wild Life and Fisheries. Getting these fish from what would eventually be their death trap does not require a heavy investment in money, but it does require a great investment in time, work and knowledge on the part of the fish rescue crews. Pulling a seine through waters choked with moss, algae and brush, while you sink to your knees or deeper in clinging mud, under a hot summer sun is no job for weaklings. It is hot, dirty, tiring work, but it yields dividends in prime fish for our restocking plans.

Although conditions for survival are absolutely lacking in these borrow pits, ditches and ponds, conditions are excellent for the early growth of the newly hatched. The waters are usually very fertile and by late summer the fish have attained a length of six inches or more . . . ideal for restocking because they have attained sufficient size to make them safe from all but the larger predatory species. No pan-fish will gobble up a six-inch bass.

So the next time you see a group of men pulling a long seine through the water of a roadside ditch, or a pond or borrow pit, up to their knees in mud, that's probably a fish rescue crew at work. And if you see a big white truck alongside the highway, or near where the men are seining, that doubtless will be one of the new thermal trucks, into which the rescued fish are placed for safe transportation.

When we took this program in 1948 there was only one fish rescue crew and two thermal trucks. Now there are two full crews and six thermal trucks to transport the rescued fish to all points of the State for restocking.

It's hot, dirty, muddy work, yes . . . but it is our investment to assure the future generations of this state that their heritage is protected . . . that they will have a chance to fish, and catch fish.

DO YOU LIKE PICTURES?

So do we! Hunting pictures . . . fishing pictures . . . pictures of the game you bagged . . . pictures of your dogs . . . pictures of yourself or your friends on a hunt or fishing trip . . . in fact any kind of good pictures that have a bearing on field or stream sports.

Mail them to EDITOR, LOUISIANA CONSERVATIONIST, 126 Civil Courts Bldg., New Orleans, and we'll return 'em to you as soon as we've been able to use them.

THESE DROWNING MONTHS

By John Madson



OF all the deaths that the people die, the most pathetic is drowning. We are not speaking of just the very young, whose fatalities are terrible under any conditions, but of adult and sub-adults. For these are the drownings that take place during holidays, vacations, and weekends, and they have a particularly tragic aspect. Death and laughter do not belong together.

Statistics and averages are usually dull. In the newspapers there is death on every hand, and we have become hardened. We are not impressed by the thousands who drown each summer. We do not know them; they are not us and they are not ours. This same detached reaction is also found in the State Office of Vital Statistics, where men coolly enter you as a statistic when you drown. They won't even mention your name. No dates are given; they are unnecessary. People have died this way once, and they will die this way again.

Date. Male. Age 10. Disappeared in water while swimming with two companions. He never came up after he went down the first time.

Many more such entries will be made until fall comes, and people no longer seek the water. The notations read like a water safety pamphlet on what not to do. Swimming too soon after meals, swimming beyond endurance, swimming beyond one's depth, and swimming alone. The reasons are still there.

If we care to listen, these statistics tell us that rivers are the most dangerous. A non-swimmer, wading downstream from a sandbar, is gently but firmly pushed by the current into a deep hole. Or a fisherman attempts to wade the stream where, only a month before, there was a bottom.

There is always a river or bayou, although lakes may be many miles away. It is seldom that rivers are supervised, and no swimmer is safe in such waters. Severe abdominal cramps are great equalizers; the Olympic champion and the non-swimmer are placed on the same level. However, one never hears of a swimming champion drowning. Lacking the wisdom and supreme self-confidence of the beginner, champions never swim alone.

The saddest entries in the statistical ledgers are those of the children. More drownings occur each year, all year, of children in the 0-4 age group than in any other age category.

Perhaps there is some excuse for adults, in the full pride of maturity, to drown themselves. There is little or no excuse for the drownings of children. Young children have no fear of water. It is something to embrace and revel in; to enter with complete trust and confidence. And enter it they should. But, if old enough, they should enter it swimming. If they are very small, the water should be correspondingly small, with their father and

mother watching. There is no other way to look at it; the parents are responsible for the children. When in or near open water children should be closely guarded. The open stock tank or rain barrel not only presents a comfortable and messy toy, it also sets the stage for tragedy.

There is nothing quite like swimming and fishing. They are the best reasons in the world for hot, sultry weather. For sheer animal delight iced tea and air conditioning will never rival a long cool swim. Beyond enjoyable as a swim might be, it is also a happy thing to be able to return home.

June, July and August are the drowning months. The weather promises to become even hotter, and statistics and rules are dull. Some of the rules you will ignore and perhaps continue to live. If you ignore them all, you will become a statistic. And they won't even mention your name.

Through the ages man has been taking to the water in boats and sometimes as a result dying. Death is the same to Grand Bank's codman or the lake fisherman. But a boating death anywhere is only especially tragic, but unnecessary and well.

As a sport, boating is unexcelled, but is also an adventure, and the spice of adventure is danger. Even the home-made raft on a farm pond is dangerous. Adv

(Continued on Page 25)

RATS and RESEARCH

SOME folks say "money for research is wasted."

And if those folks are on appropriation committees you'd better get them posted the right answers.

Sure we snicker at grown folks swinging butterfly nets; we don't take much notice of the whiskered gent stooped over a microscope, and maybe it seems foolish to study the love-life of an armadillo. But wait! Here's the prize one of all.

A fellow spends your tax dollars to find out if rats are colorblind. No foolin'. Does that rile your temper? Well, don't let it. Calm down. The answer he got was one of the most important wildlife discoveries in recent times. It's saving more birds than the feeding programs us Ikes could put the winter through. Here's the low-down:

Prairie dogs and gophers eat range and farm crops, so they have to be killed off with poisoned grain—least that's the way it happens. And if a bird got the poison instead of the rodents, as a lot of them do, it meant dead birds. Probably thousands of birds, the country over.

Now comes the researcher and finds that rodents don't give a hoot whether grain is tinted any color of the rainbow, just so



L. S. U.
Library
U.S. College

A nice picture, eh? But it is a mystery to us! Somehow the identification lines were lost, returned with another picture, or never were sent. Now, perhaps, the sender of the picture will tell us who these two expert anglers are?

red and white from blue. You know darn well he'd have been thrown out. They've made bigger laughs of things that sounded less far-fetched. And thousands of game and song birds would be dying while Congressmen raved and ranted.

Industry figures that if 10 per cent of their research pays off they're making money. Let's support our wildlife researchers. It'll be the best money you ever invested for better hunting and fishing.

This article appears through the courtesy of "OUTDOOR AMERICA," official publication of the Izaak Walton League of America,

Inc. It was originally published as part of an anonymous series entitled "Some Folks Say."

Kangaroo rats, pocket mice, prairie dogs, gazelles and dozens of other desert animals, pass their whole lives without touching a drop of water. The liquid necessary for their bodily needs is obtained through chemical action in their digestive tracts whereby some of the starchy parts of their food are changed into water.



tastes and smells like grain. Why? Well, they're just the same as colorblind. But, like a bird. He sizes up some off-natural, maybe yellow-colored grain; shakes his head; leaves it for the rodents. Course he doesn't know it's poisoned, but he savvies the color, and wants his feed the way nature drew it.

So nowadays the poisoned grain they read is colored. Birds leave it alone while the "range destroying" rodents lap up—and then turn up their toes. Simple. Cheap. Effective.

Yet, suppose this guy had asked Congress \$1000 to find out if grouse could tell



THE LOUISIANA CRAB FISHERY

By James Nelson Gowanloch

(Late chief biologist for the Louisiana Department of Wildlife and Fisheries)

BBROAD changes that have occurred in the Louisiana coastal areas have had a heavy and damaging impact upon some of our valuable aquatic and seafood resources. These arise for example, from the constant lowering of the level of the water table through drainage operations, operations involving flood control and the influence of constantly rising demands for water supply with increasing population and industrial developments.

Many of these activities are inevitable, but the fact remains they have often resulted in a decrease either of available fishing areas or of available food crops.

Such an operation as the construction of the Atchafalaya Floodway, leading from the Morganza Spillway to the Gulf of Mexico, completely alters the pattern of many forms of fresh water and seafood habitat.

Coincidentally with the blocking off of natural drainage, severe and sometimes completely disastrous decrease has been found in the availability of formerly abundant local fisheries. The chain of events whereby the changes in drainage finally

express themselves in the fishermen's yield is complicated and sometimes obscure, but the interference with drainage and the loss in fisheries do occur concurrently in time and space. Sometimes the decline in a local fishery may be catastrophic. The writer has had brought to his attention such an example in the case of the crab fisheries of the area above Morgan City. Some idea of the disastrous degree of decline may be indicated by the fact that one local company which produced 8,849 pounds of crabs in August, 1950, produced only 941 pounds in July, 1951, and only 32 pounds in August, 1951.

Crab production is enormous in Louisiana, rising in a period of fifty years from one-half million to over ten million pounds per annum. It is obvious that any improvement in the method of catching crabs becomes correspondingly the more valuable as the available stock declines, provided such methods are in accord with good conservation policy.

It is for this reason that there is here given a more extended account of certain crab-fishing methods used elsewhere in the

United States but unknown in Louisiana which methods not only are more efficient and capture larger quantities of crabs legal size, but also have the merit of conserving both the crab stock and inflicting the least possible damage on the crab environment. Previous mention which I have made by the writer of these methods have evoked a flood of inquiry for specifications and it is for this reason that there is here given a compact account of the equipment employed.

The three categories of crab-catch equipment highly desirable for use in Louisiana are: first, a crab pot; second, more or less automatic method of running a trotline; and, third, the use of a "c-scaper" to harvest soft shell crabs.

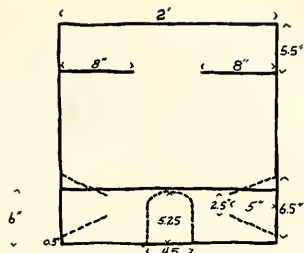
Descriptions of each of these here follows:

Crab Pot

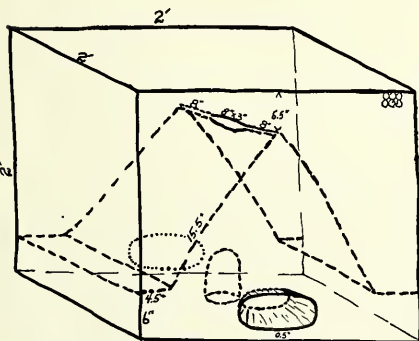
The crab pot is essentially the modification of the traditional lobster pot used centuries in capturing the northern lobster. It has been used with extreme success on the East Coast, where it is standard gear, but has never been used in



Two-Entrance Crab Pot. Elevation from one of the entrance sides showing the path followed by trapped crabs. The ringlike structure indicated represents the entrance funnel beyond which can be seen the big compartment containing a bait, menhaden. When in the upper chamber, the crab, unable to escape, awaits removal.



Crab Pot. Elevation of two-entrance model from one of the closed sides showing dimensions of upper compartment floor and central exit from lower to upper chamber, lateral funnel entrances and central bait compartment.



Crab Pot. This is two-entrance model crab pot showing details of construction. The modification into a four-entrance type is indicated in another illustration. (Original drawing by Harry E. Schafer, Jr., Louisiana Department of Wild Life and Fisheries.)

ENTRANCE

OUTSIDE OPENING 11" x 6.5"

INSIDE OPENING 5.25" x 2.5"

6.5" 5" 2.5"

BAITER

5.25" high
4.5" diameter

GABLE

4.5" 15.5" 8" 8" 13" 8" 1"

TOP

Here they encounter this time a single small aperture and emerge into the upper chamber of the trap which is provided with a gabled floor. There, unharmed, they remain and can easily be removed. The specifications of construction of the trap are here given since the measurements indicated have been arrived at as the result of long practical experience. The degree of reinforcement of the trap by incorporating a heavy wire frame into the construction of the bottom of the trap or of the whole trap depends upon the load of catch to be lifted, which in turn depends upon the frequency with which the trap is serviced and the abundance of crabs present.

The crab pot is a cube 2 feet by 2 feet by 2 feet, constructed of 1½ inch mesh chicken wire. There are two entrances opposite each other, each at one end of the tentlike internal partition that separates the lower chamber of the pot from the upper chamber. Each entrance is 1½ inches above the base of the trap and measures 11 inches horizontally and 6½ inches vertically. Inside each entrance is a funnel of the same chicken wire 5 inches long and decreasing in size from the 11 x 6½ inch entrance dimensions to an inside funnel exit 5½ x 2½ inches.

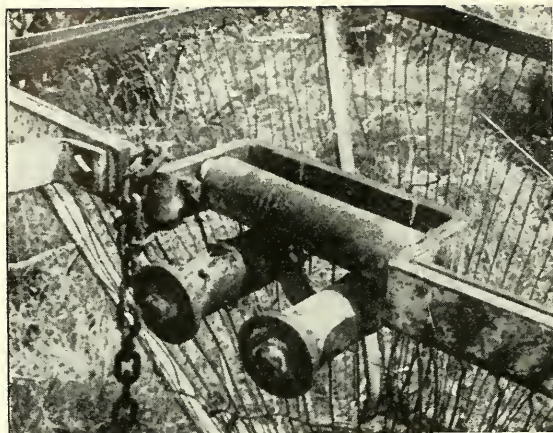
The bait compartment, which is attached in the center of the crab pot floor, is a vertical cylinder 4½ inches in diameter, 5½ inches high and having a rounded top. Access to the bait compartment is afforded by cutting a wire flap in the floor of the pot, which serves as an easily closed door. The internal partition of the pot follows the form of a gabled tent. It is attached to the pot walls 6 inches from the base of the pot, then forms a horizontal 4½ inch shelf from which it proceeds at an angle of 45°, 15½ inches on each side, but the two sides do not meet at an angle but meet in such a manner that they form a cut-off 1 inch wide forming a horizontal crest. This crest carries the exit into the upper pot chamber. This exit, which is centrally placed, measures 8 inches longitudinally and 3 inches laterally, thus leaving on each side of it a closed flat 8 inch section of crest. Through this aperture, the crabs pass into the holding chamber.

Access to the pot is provided by a simple construction whereby one of the lateral edges of the trap, an edge parallel to the axis of the internal partition, is not fastened but is finished off so that it can be pressed aside and provide for the removal of the catch. The pots must be provided with necessary line and cork buoys so that they may be readily recovered. The lifting line can be attached singly (or as is usually necessary) bridled to the corners of the pot to prevent damage when the weight of the catch is such that the structure would otherwise be distorted.

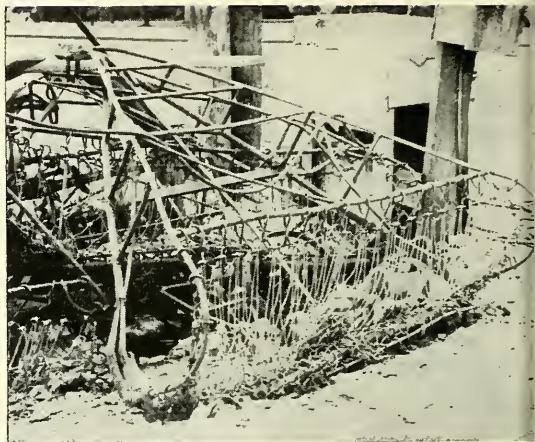
The second crab fishing technique concerns the method of making the removal of the crabs from the trotline practically automatic. A legal construction is illus-

er than an experimental manner in Louisiana waters, although it is, in the writer's opinion, one of the most efficient methods that could be used by a small operator. It has the commendation of conservation authorities wherever it is employed, since it holds the captured crabs without harm and permits the release of oversized individuals. It has the further merit of being inexpensive (capable of being easily constructed by any proficient fisherman himself) and capable of inexpensive maintenance care. The crab pot is designed on the basis of normal crab behavior.

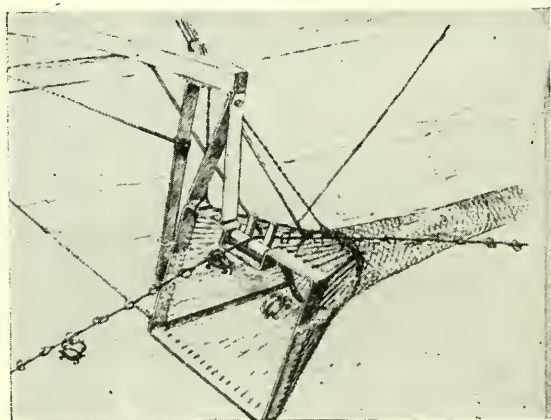
Crabs are extremely energetic bottom feeders. Once they locate food, they are extremely persistent in their activities directed toward reaching that food. Crabs in this are broadly unlike finfish for the capture of which in traps such as pound traps, long directing baffles are necessary to guide the prey into the definitive enclosure. The crab pot offers the crabs only two relatively small entrance apertures, but experience shows that these are adequate. Once the crabs have passed the funnel and have found their efforts to close in on the bait are not successful, they follow their normal reaction of rising.



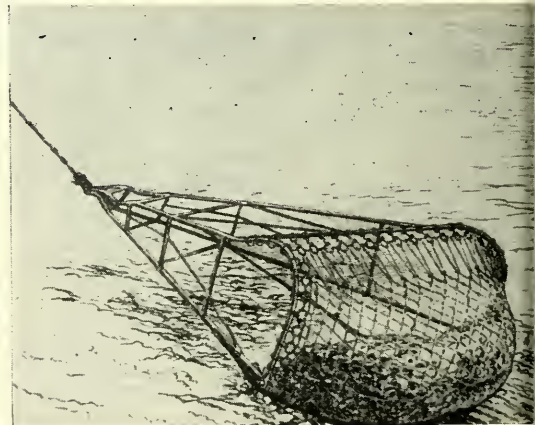
The roller and bracket type of crab trotline apparatus. The line is threaded over a horizontal and two vertical rollers. As the crabs clinging to the bait strike the roller, they drop into the funnel section of the "automatic dip net" and pass backward into the bag section. (After McHugh.)



This view of Scrapers for soft shell crabs shows how the delicate animals are protectively wrapped up in the Turtle Grass and other undersea vegetation in which they seek shelter to shed. (After McHugh.)



Automatic Crab Trotline Dip Net—Here are shown in detail the single horizontal and double vertical rollers. The crab trotline passes first over the horizontal roller and then between the vertical rollers. The crabs drop into the square basket-like funnel shown below the rollers. (After McHugh.)



A Crab Scraper or Dredge utilized for capturing soft shell crabs in typical grassy "shedding" areas. The gear rolls the crabs up and out of the dead grass, thereby also cultivating and improving the growth of the necessary underwater plant life. (After McHugh.)

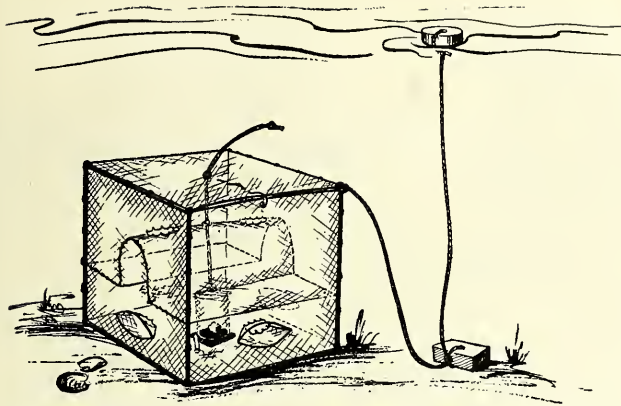
trated in one of the accompanying figures, in the use of which the trotline is passed over a roller between two vertical posts and the crabs which have attached themselves to the bait are knocked off into the indicated apparatus so that they are caught in the mouth of a rectangular funnel-shaped net and are swept backward by the motion of the boat into an attached long, cylindrical following net, from which they are recovered at appropriate intervals. General arrangements can be then understood from the illustrated diagram.

The third special apparatus is designed for the capture of soft-shell crabs on a

more productive basis than the usual methods employed in most localities in Louisiana. Responding to the changes that occur preliminary to shedding, the crabs instinctively move into shelter, which may consist of beds of turtle grass or other subaquatic vegetation, where they moult and remain until the new shell secreted in fluid form has had time to harden. The crabs at the same time imbibe water and within a matter of only several minutes may increase their width by as much as 20 per cent. It is by taking advantage of this that the Louisiana crab fisherman invented an ingenious and highly efficient method of

catching soft shell crabs. This consists simply of tying together bundles of br which were then submerged in appropriate crab waters, visited at intervals, and crabs which had sought shelter in them the purpose of shedding were captured, examined, sorted and marketed. The method for the casual and amateur soft shell crabber was a search of turtle grass beds the shedding crabs being taken with a net.

The use of the crab scraper has the tremendous advantage of, first, its efficacy in capturing the crabs; second, lack of damage to the crabs themselves since



Four-Entrance Model of Efficient Crab Pot. Here attached to the buoy line at only one corner, this crab pot set utilizes a brick anchor. The lifting line is attached to a bridle tied to opposite corners of the pot. Where currents are swift, an anchor (brick, concrete or pieces of iron) is attached to opposite corners of the crab pot under the bridle. (After Andrews.)

operation they are rolled up in the net and the undersized individuals can be released unharmed; and third, the net that the scraper in passing over the beds of vegetation automatically removes the dead plants and thus cultivates the beds.

The fishermen have further modified the crab pot by constructing four instead of two entrances, each entrance being placed in the similar position on each side of the pot.

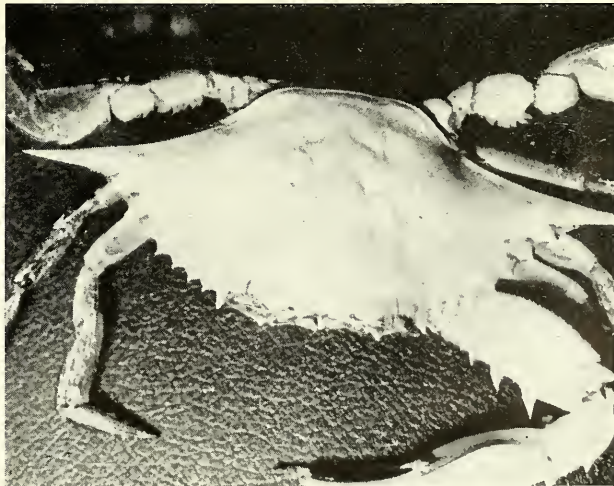
Fishermen operating crab pots either set them individually in a long line or in a series of short lines parallel to each other about 100 feet apart. The crab pots are successful in depth of 1 to 10 fathoms. Fishermen usually operate crab pot lines with a crew of two, using a 35 to 40 foot net, but the fishing could be carried out by one man. Some states where crab pots are used impose a limit of 50 crab pots for each fishing unit but, as a matter of fact, 75 pots could be easily handled where such restrictions are unnecessary for conservation reasons. The operators usually haul their crab pots once a day, early in the morning, and ordinarily finish their work shortly after daybreak, since lifting the crab pots occupies only 2 to 3 hours. The crab pots must be re-baited every day. The 150-foot roll of 24-inch wide chicken wire will make 9 crab pots. Further additional remarks are of value in indicating the details of this type of crab catching operation. Iron rod frames are sometimes used, extended around all the edges of the pot to insure preserving the shape. These, however, may be entirely omitted. Consequently, some concrete pourings, concrete or incidental section of pipe are used to opposite corners of the bottom of the pot to prevent its being overturned by currents. It has been found that the type illustrated with the partitioned floor above

the base of the pot, thus providing place for four instead of two entrances, is, as would be expected, greatly more efficient. The fishermen also find that the crab pot frequently catches its own bait in the form of so-called "sardines," various types of herringlike fishes, such as menhaden, which wander into the funnel entrances. Where pots are set in areas of heavy current, fishermen have found it necessary to reduce the height from 24 to 20 inches to

prevent them being overturned. Where this construction is used, the opening for removing the crabs is placed at the side of the pot, since only the sides have the double selvage.

The usual method employed by fishermen is to tie the end of the front line directly to the rope bridle attached to two opposite corners of the top of the pot. Where the crab pot is heavily reinforced in its construction, the front line is ordinarily attached simply to one corner.

Details of construction are shown in the accompanying illustrations. This type of crab scrape consists essentially of a welded iron frame. The thickness of the components of the iron used is indicated in the underline to the illustration. The construction is illustrated as viewed from the side in Figure 1, from the front in Figure 2, from the front again but with the net attachment indicated in Figure 3, and the general shape of the net as viewed simply as a flat object in Figure 4. The actual measurements are here given for clearness as indicated from the lettering shown in Figures 1 and 2, and are as follows: internal diameter of ring at a —1 inch; length a to b —3 $\frac{3}{4}$ inches; b to c —20 $\frac{1}{2}$ inches; c to d —33 $\frac{1}{2}$ inches; c to e —22 $\frac{1}{2}$ inches; separation between e and h —1 $\frac{1}{2}$ inches; d to f —13 $\frac{1}{2}$ inches; e to g —17 inches; f to g —12 inches; i to j —40 inches. The net laid out as placed in Figure 4 measures 40 inches at the front edge, 62 inches in depth and 15 inches across at the base.



Albino Blue Crab. This is a photograph of the rarest blue crab that has ever been known. It is a unique individual taken by a Department of Wild Life and Fisheries agent, Willie Schaubhut, Bayou Des Allemands, in June, 1950. It was completely white and would have been dangerously conspicuous to all of its enemies. Although the blue crab fishery has been under investigation for the last eighty years, throughout the entire Atlantic and Gulf Coasts, all the way from Nova Scotia to the Mexican border, of the untold billions of crabs that have come under scientific observation in the course of these researches, this is the only albino that has ever been discovered.



CATAHOULA LAKE

By Richard K. Yancey

(Federal Aid Project 17-R, Louisiana
Department of Wild Life and Fisheries)

CENTRAL Louisiana contains Catahoula Lake and is therefore blessed with one of the most unique natural areas in the country. It provides excellent public duck shooting during the winter, good grazing for hogs and cattle in the late summer, and fine sport and commercial fishing during the remainder of the year. Louisiana contains many areas that possess one or perhaps two of the above qualities but Catahoula Lake is the only one that may boast of all three.

The 21,000-acre lake bottom is very flat and if the water stands at a depth of 3 feet in the middle, the entire lake bed is flooded out. The area is completely open except for a few oil derricks, and is surrounded by a fringe of water elm (*Ulmus aquatica*) and swamp privet (*Forestiera acuminata*) that varies in width to one-half mile.

The characteristic that brings about the duck hunting, fishing, and grazing combination is the manner in which water levels naturally fluctuate over the lake bed. Water levels stand over the lake bottom to a depth of five to 20 feet from late December to late August and the lake then goes almost dry. During the late spring and summer when water levels are falling, excellent sport fishing for bass, bream, barfish, and white perch is to be had in the

lake and its tributaries. Commercial fishing is principally for buffalo and catfish.

Catahoula Lake is most widely known for its fall and winter waterfowl concentrations. Sportsmen from throughout this section of the south visit the area during the winter to hunt and view the legions of waterfowl. According to one of the most famous flyway biologists who has looked over most of the waterfowl areas in North America, Catahoula Lake is perhaps one of the most important single areas of its size to waterfowl on the continent. It has been known to harbor as many as two million ducks at one time although the normal winter population usually fluctuates around 50,000. It is important not only to waterfowl, but to duck hunters as well. Anyone who has the stamina and desire to duck hunt can feel completely free to come and go as he pleases here. The only rules necessary to follow are those migratory waterfowl laws set forth by the Federal Government.

The reason that Catahoula Lake is such a great waterfowl area is that it generally goes almost dry during the late summer. Usually about one-half of the lake bottom is exposed in the form of open mud flats as the water drains out through Old River and French Fork during August. These mud flats present an excellent seed

bed and the past year's crop of seeds, tubers that have remained viable beneath the water for nine months, begins to germinate as the soil is exposed to the air.

As water levels recede to the center of the lake bed, hogs move in and turn the soil in search of chufa tubers and other forms of food. This turning of the soil acts in much the same fashion as a plow disc and is probably beneficial in the production of healthy waterfowl food plants. Within a few days after exposure to the mud flats begin to resemble a giant pasture. Chufa, wild millet, spikerush, and other plants important to ducks, grow profusely and produce a terrific crop of seed and tubers. After the seed crop matures during September, October, or early November, water levels begin to slowly rise again and flood out the food producing mud flats to a depth of a few inches. As this condition occurs, the fall flights of waterfowl arrive and they immediately flock in to feed upon the food supply that has become available through flooding.

After the duck season opens, hunting pressure forces the waterfowl concentrations to disperse into the state refuges located in the south central part of the lake bed, and other waterfowl areas within 50 miles of the lake. For this reason, Catahoula Lake is directly important



Chufas and wild millet in Mosquito Bend, Catahoula Lake.

every duck hunter in central Louisiana since it largely controls the quality of hunting in this section of the state. Food habit studies reveal that chufa tubers produced here are frequently found in the stomachs of ducks bagged on Black and Line Lakes and other relatively distant areas. Catahoula Lake at this time is the only area in north Louisiana that produces a good supply of food for mallards and pintails during the early winter except for a few isolated areas along the Mississippi River.

Pollution and lead poisoning are two of the principal problems encountered in maintaining the lake as a waterfowl area.

Catahoula Lake is not, however, without problems. It is constantly faced with pollution and has severe outbreaks of lead poisoning occasionally. The pollution problem has an indirect effect in that brine and oil bring about changes in the vegetation that provides the food supply for waterfowl. Lead poisoning is a more direct factor in reducing the lake's value to waterfowl in that it can prove fatal as ducks pick up lead shot while feeding. Prior to the hunting season of 1950, thirty-two dead and sick ducks were picked up in one day around the fringes of the lake by the writer. Post mortem examinations revealed that all stomachs contained lethal doses of lead shot, of upwards to 25 pellets, that had been picked up by the ducks while feeding. The action of grit and hard seeds in the gizzards against the lead shot creates poison in the duck's system that may kill

almost immediately or take weeks to prove fatal. The mortality brought about by this condition on Catahoula Lake during 1950 can only be guessed at since a large number of the ducks that picked up shot probably died elsewhere. The possibility of a duck picking up a few shot while feeding does not seem so remote to those who have listened to an opening day bombardment

at the lake and will stop to consider the number of shots that have been fired here during the past decade. The number of shot contained by the lake bed would unquestionably reach astronomical proportions if it were accurately determined. At this time, biologists of the Illinois Natural History Survey are conducting an intensive study concerning a means of alleviating this ever increasing national waterfowl problem.

Hunters' bag checks during the past two years reveal that an estimated 11,000 ducks were legally taken on Catahoula during the late 30 day hunting season of 1950 while an estimated 5,000 ducks were legally taken during the early 45 day season of 1951. The kill figures determined through hunters' bag checks during these two years are shown in the table. The most conclusive figure to note is that the average success per hunter per hunt dropped from 2.66 ducks per day in 1950 to 1.26 per day in 1951.

Habitat conditions were decidedly different and the effects of this factor show up most clearly in the waterfowl census graphs for the two years. During the early fall of 1950, the feeding grounds were flooded out perfectly to a depth of a few inches and this attracted a peak population of approximately 135,000 ducks. The turnover in population was terrific during this year as the census graph clearly shows. During the fall of 1951, the lake bed produced an excellent growth of duck food plants while it was dry during September but the food supply was never available in large quantities. The lake bottom was hard and dry until early December due to a lack of rainfall. About December 10, high water in the Mississippi then caused backwater conditions in Little River that rapidly filled



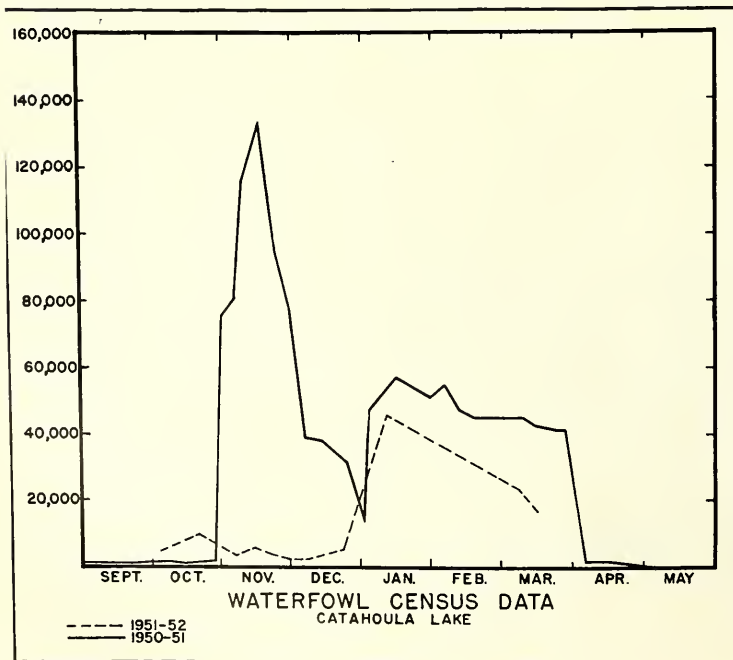
An excellent natural stand of duck food plants (chufa and wild millet) produced during the late summer, after Catahoula Lake goes partially dry. The man is Gilbert Sanson, game warden for the Department of Wild Life and Fisheries.

the lake to a depth of 3 or 4 feet which is unusable by puddle ducks. Consequently, Catahoula Lake did not hold a large number of puddle ducks, during the winter of 1951 as the census graphs show.

Waterfowl Hunter Bag Check Catahoula Lake 1950 and 1951

	12/2/50—1/5/51	11/2/51—12/16/51
No. of hunts checked	563	1,395
Total man hours hunted	1,769	5,218
Mallard	969 (65%)*	449 (26%)*
Pintail	153 (10%)	604 (34%)
Shoveller	55 (4%)	48 (3%)
Baldpate	12 (1%)	68 (4%)
Gadwell	5 trace	57 (4%)
Black Duck	1 trace	2 trace
B. W. Teal	2 trace	27 (2%)
G. W. Teal	184 (12%)	365 (21%)
Woodduck	12 trace	6 trace
Redhead	3 trace	3 trace
Canvasback	61 (4%)	27 trace
Scaup	13 (1%)	82 (5%)
Ring-necked	14 (1%)	9 trace
Bufflehead	1 trace	3 trace
Ruddy Duck	12 (1%)	5 trace
H. Merganser	5 trace	
TOTAL	1,502	1,755
Blue Geese	4	56
Snow Geese	0	1
Coots	7	307
Average duck kill / hunter / hunt	2.66	1.26

*These figures indicate the percentage composition by species of the total number.



SOME FOLKS SAY:

"You Can't Teach an Old Dog New Tricks"

THINKIN' of soils, woods, water, and wildlife, and us folks and our job of defendin' 'em—I wonder. Its easy to throw in with that kind of thinkin'—maybe too easy.

Take a six-weeks old pup, spraddled on the floor, chewin' your cast-off slipper. May have a pedigree a yard long, but no worryin' a bit about it. Main interest ju



chewin'. Yet, if you just move, or speak, he's got his head cocked, ears up, eyes bright, just coaxin' you to teach him something new.

Same way with kids. Give 'em a task on outdoor stuff—throw in a few pictures—and they lap it up. You can really teach them conservation. Some say that's where to put the effort.

Sure, let's train 'em. But not just because its easy.

Now let's consider the old dog. Take the folks who teach our kids, or the folks who tell the teachers what to teach. Or, take the folks who write the books of learning. Pups? Hardly. . . . Old dogs? Some 'em, surely.

How many of them really know and teach that natural resources are the foundation of secure livin'? Not just a hear-say follow-the-leader, along-with-other-things current day fad; but a down-to-earth heart-and-soul, practice-what-you-preach conviction that respect for land and water is fundamental to life as we'd like to live it? And how many look at land use real knowin' whether its good or bad? The talk might be discouragin'.

So, those who say an old dog can't be taught new tricks are passin' the buck handin' the next generation today's problems—takin' what looks like the easy way out. Meanwhile, Ol' Man River keeps rollin' along, and the next generation's looking for sources with it. The old dogs just have been taught, and now.



By Don Shiner

SINKERS are thought of as simply lead weights which fishermen attach to their lines to hold the baits close to the bottom of a lake or stream. It is true, sinkers are simply lead weights, but today, like other tackle, great strides have been made in sinker design and the methods of using these weights. Today there are sinkers for still fishing, sinkers for trolling, sinkers for casting and spinning, and sinkers for the ordinary run of bait fishing as done for trout and bass. Every method of angling is a specially designed sinker and to be successful, the angler should know the advantage of one type sinker over another and which of them to select and when to use them.

For example, when drifting a worm down a rather fast current, a small amount of lead is needed to keep the bait close to the bottom. For this there is the split shot and the strip or wrap-around strip of lead. When trolling for walleyes and lake trout, where the lure or bait must be kept on the bottom, the snagless type sinker is ideal. This type sinker will seldom become fouled among rocks and stone ledges as is the case with some of the other sinker designs.

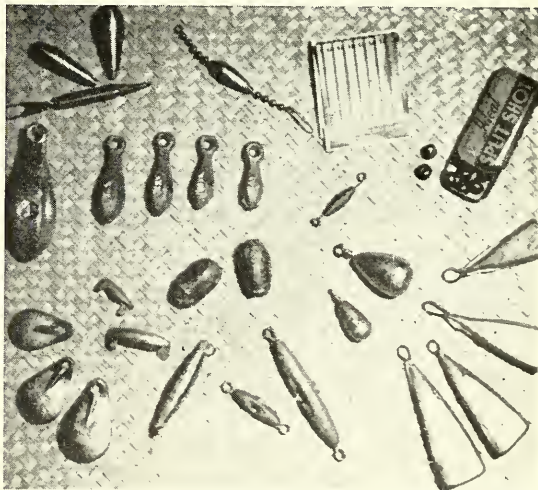
Still another example of a highly specialized sinker is the egg-shaped or oval sinker. This type is used when bait fishing for bass or carp. Generally when these fish seize a bait, they make a long run and, if they feel the drag of a weighty sinker, they often they will drop the bait immediately. Here's where the hollow oval sinker comes into the picture. The line is threaded through the sinker and tied to a short piece of wire or wood which will prevent the sinker from sliding down to the baited hook, but when a fish seizes the bait and runs with it, the line simply runs through the sinker and the fish is none the wiser.

There are also specially designed sinkers for adding to the line or lure so that a greater distance can be achieved when casting or spinning. Some of these sinkers can be attached to the line without the need of unfastening it from the lure, and further, are made in such a way that they can be interchanged and replaced with one of heavier or lighter weight without damage to the line.

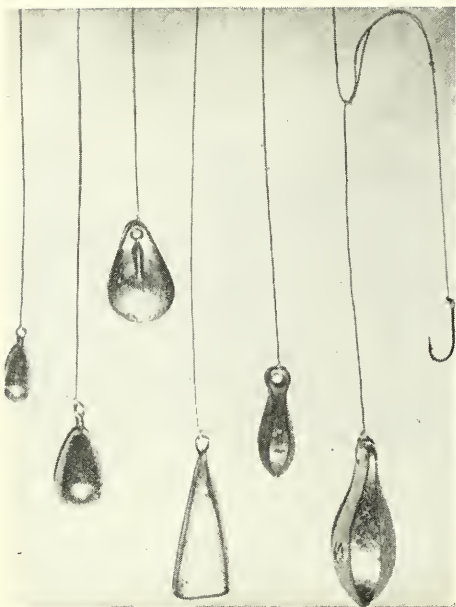
Sinkers have come a long way from the time they were simply pieces of moulded or pounded lead material. They are a necessary part of angling, and, by having a thorough know-

how in sinker selection, fishing can be more successful.

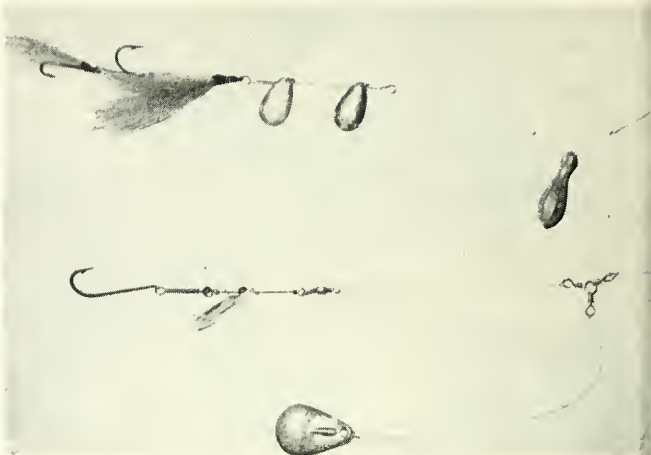
Shown here are selection of the most popular sinkers and how they are used. Study the methods shown, better still, tear out these pages and keep them in your tackle box for a handy reference guide when rigging up the tackle for a day of fishing. Sinkers play a big part in fishing, so big in fact that without a good selection or a knowledge of how to use them, the fisherman may find himself "sunk!"



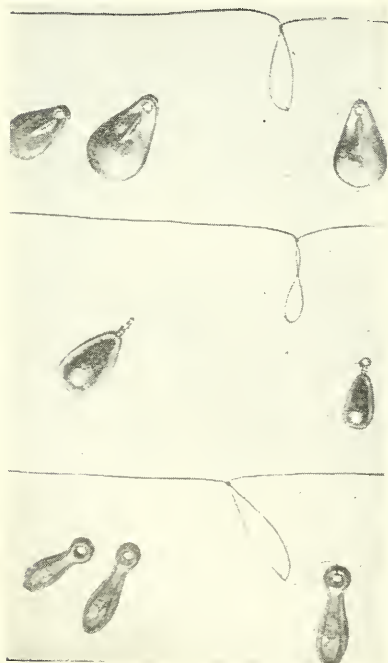
Here are a few of the most popular types of sinkers. Top row shows interchangeable casting weights, beaded chain and sinker, lead-strip or wrap-around sinkers, split shot. Second row shows bank sinkers in weights of 4 ozs. to 3/8 oz., the pinch-on variety, the oval or lead shaped sinker, bass casting sinker, reversed pyramid sinkers in various sizes and in center bottom, is the adjustable loop-on sinker.



When still fishing for suckers and catfish, always place the sinker on end of line with hooks above sinker. Shown here are the bass, snagproof, triangle and bank sinkers tied on line below hooks, ready to be used.



Here are two other methods of using sinkers when trolling. Top arrangement shows a bank sinker fastened above lure by a line of lower breaking test which is fastened between two loops in line. Bottom rigging shows a three-way swivel use, with line and lure attached to one eye while sinker, on lighter test line, is attached to another. Both methods are ideal when trolling for walleyes and lake trout.



(on Left)

When trolling use these sinkers and attach them by this method: Top shows the patented, snagless type sinker fastened to line in line by means of a line of lighter breaking test. If sinker becomes fouled, the weaker line will break first, causing only the loss of the sinker.

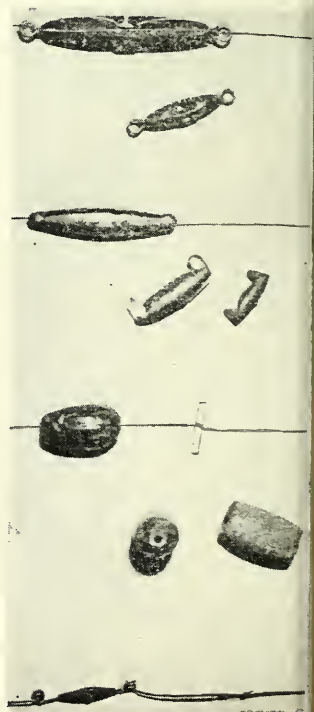
(on Right)

Reading from top downward is the adjustable loop-on sinker. Line is doubled through eyelets, then looped over cut-out center portion. This sinker is generally used when casting.

Second is the clamp or pinch-on type sinker. Line runs through slot cut through sinker and the tabs on end wrap over line.

Third is the oval or egg shaped sinker. This sinker has hole through center for the line. A small stick is then fastened below sinker. This sinker has hole through center for the line. A small stick is then fastened below sinker. This sinker holds bait to bottom of stream yet the fish can seize bait and run with it without feeling drag of sinker.

Fourth is the adjustable ringed sinker which can be used as a connection between line and leader by means of the wire loops in each end.





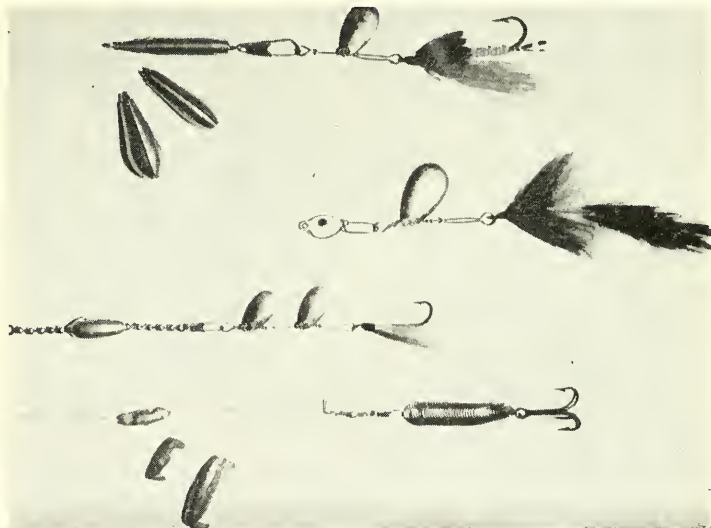
The lead-strip sinker is wrapped around the leader or line. This sinker is used when a small weight is needed to sink bait to bottom or when worm fishing for trout in rather swift water. One variety of wrap-around lead strips comes in a booklet, similar to book matches, and is very convenient to carry.



Split shot. This type is a small ball of lead in various sizes that have been split open so it can be clamped to line or leader. Used when a small weight is needed to sink bait to bottom, in trout fishing, etc. One or two split shot can also be attached to line to make bait or lure somewhat heavier in order to cast with a spinning or casting rod.



What sinker to buy? It's a question facing many of us when visiting a tackle shop. There are sinkers for still fishing in lakes, or still fishing in fast moving streams, here are also sinkers for trolling, for casting—in short, buy sinkers for the type fishing you plan to do.



These sinkers are designed for attaching to line adding weight to the lure when casting or spinning. Top shows the clamp or pinch-on style sinker in place above lure. Second is the beaded snap and sinker. This variety acts like swivel for lures that ordinarily twist line and also adds weight to a small lure such as a spinner and fly. Third is a combination weight and snap, which is attached directly to lure. Fourth is the interchangeable casting weight which can be attached to a lure by means of a snap.

Band Blackbirds to Protect Rice Fields

The U. S. Fish and Wildlife Service is currently investigating the blackbird versus rice problem in the Arkansas rice belt. It is important that they find out where the birds are at all seasons of the year and which ones actually invade the rice fields.

In order to pinpoint those species and populations of blackbirds actually involved

in rice field depredations some 30,000 blackbirds have been banded or tagged in the Stuttgart-Dewitt area during the last few years.

Since returns from banded birds of this type have previously been very few (1-2 per cent) it is urged that all persons who for any reason have an opportunity to handle blackbirds, especially in the rice fields, check the legs of such birds for metal bands. Each band bears a serial number and return address and when

found should be sent to the U.S. Fish and Wildlife Service, Bird Banding Office, Patuxent Refuge, Laurel, Maryland.

The man of war, or frigate, bird is a genuine feathered airplane. The enormous stretch of its wings measures $7\frac{1}{2}$ feet across.

The earthworms of Australia often grow to a length of 12 feet.

GOD IS MY LANDLORD

(This stirring conservation sermon was first delivered in a Stevens Point, Wis., church, and was repeated by request at a meeting of the Wisconsin Federation of Conservation Clubs.)



TO SOME, perhaps, it may seem strange that I as a clergyman should speak about conservation. I feel it is a privilege to do so, and while my voice has not been strong on this issue, I hope that I and my fellow members of the clergy may become increasingly aware of the message of the church about conservation.

By the Reverend Orvis M. Hanson

GOD IS MY LANDLORD! Does this sound strange? Is not this world mine? Haven't I bought my property, or isn't the lake or stream a public domain?

Whence came these forests and streams, the fertile land and the rich

deposits? They are our heritage. Past generations have used them and passed them on to us. They have given us a trust, telling us to pass them on again to our children and our children's children. We have been told that we owe it to future generations to preserve what we have so that these generations too come may not suffer for our negligence or misuse.

HOW DID our ancestors come into such rich possessions? They, too, received them, for God created all things good and passed them to men, telling them to use these things of our world.

God is my Landlord! He gave abundant forests, streams and lakes that teemed with fish, that stored the water for the more arid years. The richness of the soil waited only for the farmer's plow to bring forth fruit in abundance. The wealth beneath the soil waited only for the bit of the drill or the miner's shovel.

Yet, you know what has happened. In many areas the good earth has been despoiled. The forests were cut without sense, and men misused this rich heritage. They thought they could get something for themselves. They didn't worry about the generations to come for they thought there would be enough for all time, or else they didn't care.

We forgot that it really belonged to God. We coveted, we stole, we destroyed that which belonged to God. The Landlord's final rent may not be due, but already we are paying and paying. Having sown the wind we are beginning to reap the whirlwind, and no one yet knows what the future will bring unless we bring ourselves to restore and properly use this heritage.

WE HAVE SAID that it is wrong to steal. Law of God and law of government agree that a man has a right to own. It is not our privilege to take that which belongs to another. Yet men have stolen from future generations. If destruction of soil, forests, and other resources continues, large areas may yet become waste and our children's children be forced to move on to other areas where they too may despoil. It must also be considered a moral wrong to steal from these unknown generations.

THIS HERITAGE which we use, which belongs to God, we must maintain. After our period of use is over, it must be passed on as good as we received it. I do not, what kind of renters are we? If we apply care to that which we have in ward for others in this life, ought we not to exercise even greater care over that which we hold in ward for God?

It is to the shame of mankind that at any time he can look around and see that his heritage is deteriorating because he has not done his part to keep it up. Mankind suffers, in one generation and the next, because man has not learned that God is his Landlord.

Jesus told the parable of the talents. It is well known enough not to repeat it, but I will mention it again briefly. A king went away, but before he left he gave his property to his servants, telling them to care for it. Two of the men went out and put their talents (property) to work while the other kept what he had received safely, but did not use it or improve it. When the king returned he complimented the two for their use, but the third, who returned what he had been given, was called a worthless servant.

OUT OF this parable I want to draw two lessons which I believe apply here. **WE MUST IMPROVE OUR HERITAGE** AND **WE MUST NOT NEGLECT IT.**

It is expected of us that we not only maintain what we have received but that we improve it. It is ours to use so that we **WILL** improve it. As the population of the world grows, so must its ability of sustenance. To provide for this ability we must pass on a world that is **BETTER** than that which we received. God has provided for a growing world by giving his servants the command to improve, improve!

This means that through the inventive genius of man (which also is a gift) we have new and better uses for what we have. It means that we will have to discover new products, new ores, new resources. We have to push out beyond the boundaries of what is known. This means also that we have to find new methods of maintaining an improving that which we already have found.

BUT GOD wants us to use this heritage. We are not to be enemies of our environment, we are to be friends, for the world as created good, and it is here for our good. There are some who think of conservation only as a sportsman's sideline. To preserve his pleasure. Pleasure is a part of this world, God wants us to enjoy it, for "re-creation" is a part of man's need and God's plan. But the land, the resources of field and mine, and all of our heritage must not be neglected or abused. It is not to be sapped of its life and future, but it is to be used for good.

ONE WONDERS the price which God will exact from mankind for so much use of these resources for evil, for war and destruction. But just as surely as this is wrong, so it is wrong to think that we can be lazy, indifferent, or hostile to our world. It is good, and God wants it maintained and improved for good. It is ours to share, not to use selfishly for ourselves alone.

It is a source of wonder that the church has not been more active on the side of conservation. From that which has been



A fine string of bluegills, bream and blue catfish caught in Second Lake, near Mellville, by (left to right) Karl Wiggins, Gladmy Ardoin and Elmo Melder, of Ville Platte, La.

said it should be evident that the church has something to say about the way that we use this world, for we are only stewards of what belongs to God.

The church has been active in conservation, that of the human soul, and that of life. Its attention has been focused, perhaps too exclusively, on that which will exist forever. We work to conserve men's souls so that they may enter the heritage of heaven which is God's will. So also the church has been concerned about the sacredness of human life. It is against those who enslave, those who have forgotten that they are their brother's keeper. But our message should cover the whole of man, even his environment.

THE CHURCH is not the agency which, in its major program, can teach the methods of soil conservation, of wildlife conservation, etc. It has many other things of extreme importance to teach. One thing, however, it can and must do. It must teach man a *responsibility* as over against the heritage which he has received from God. Man must learn that God is his Landlord.

In your work you try to educate, and you are influential in the establishment of laws which fit our best understanding of conserving our heritage. One thing further is needed. Men must *want* to obey these laws and follow these suggestions. Perhaps it is in this field as much as in any way that we of the church can be of service. If we love God we will want to do His will. If we know that this world is really His, we will want to use it wisely and well. We need to learn to live with our Landlord.

We are proud of our land, our nation and its resources. Let us make use of our opportunity, let us maintain that we have received, let us pass it on improved to our children, for God is our Landlord.

While some animals are able to glide and even soar, the bat is the only animal that can really fly.

HUNTING

BY PERMISSION ONLY

By Ken Wright

FROM one end of the nation to the other, hunters raise a hue and cry every time they see a new "NO HUNTING" or similar sign which has been tacked to a tree or post on their favorite hunting grounds. They are not alone in their grief, however, because the landowner comes in for his share of the aches and pains concerning posting.

It all boils down to the fact that it doesn't matter which side of the fence you happen to be on, posting is a pain in the neck to all concerned. The really sorry part of the situation is that hunter, landowner—and wildlife, will be the ultimate losers unless we find a workable solution. The hunter will find fewer places to hunt and there is the possibility that even if he could, there wouldn't be enough birds to hunt. If both hunting spots and birds are scarce as hen's teeth, the landowner loses the protection of the birds who go a long way in keeping insects at a low level. From a management standpoint, wildlife must be dealt with on an overall basis. Open seasons are declared because a surplus of birds or other wildlife exists. Good management demands that this surplus be harvested insofar as possible since an overpopulation of a given species means less food, less protective or "escape" cover, and less nesting cover. The land can support just so much. Nature will harvest the balance if man does not.

Posting, prohibiting hunting entirely,

sets up thousands of small refuges in the open area thus defeating the purpose of an open season.

Posting can be likened to poison. In small doses it can do good. An overdose, however, means the end.

The landowner must have some protection for his property. Too often the hunter has abused the privilege of hunting on private land. He leaves gates open, drives over crops and shoots holes through the landowner's bedroom. Who can blame the owner for barricading himself behind a multitude of "No Hunting" signs?

On the other side of the fence John Jones, hearing through the grapevine that Mr. Smith down the line lost a bull or other animal, assumed that a careless hunter was the culprit and promptly begins buying signs in carload lots.

Then there is the posting done because the landowner just plain dislikes hunters. Still another, and probably the least desirable of all, is the posting done by hunters who, either with or without the consent of the landowner, take it upon themselves to put up signs on Mr. Jones' property. Too many times this type of posting is done so one man, or a group, can hunt without having to share his luck with a fellow nimrod. In other words—pure selfishness and greed.

Everyone realizes that you cannot make a blanket statement and say that all posting of land is either good or bad. Each case must be judged on individual merits. No one can deny, however, that constant squabbling, court cases, etc., is bad for everyone concerned. The hunter cannot continue to classify all landowners as a threat to free public hunting and neither can the owner continue to classify all hunters as destroyers of property and a menace to life and limb, at least this is true if we are to have any harmony whatsoever.

No matter how much legislation is passed, if posting becomes a grave problem then human relationships are bound to suffer. We can go a long way towards improving relationships if we but realize that there probably will be a minority of hunters who refuse to look upon their hunting as a privilege granted by the landowner, with us always. By the same token we always will have the landowner who refuses to believe in good wildlife management and who dislikes hunters in general.

During the last session of the legislature the posting law was revised. This revision provided that the name and address of the landowner or tenant posting the land, and the date of posting must appear on each sign. There should be no excuse for a hunter not taking the time to visit the farmer and asking permission to hunt.

A bill, to be introduced during the next legislative session will go still further in making our posting laws workable, if the proper human relationship exists. It will

provide that only the owner or tenant of the land may post it.

The proposed bill provides that criminal action can result, only where trespassing has taken place on which was legally posted as provided by law. Under this bill the owner or tenant of the land may legally post his land and still maintain his rights to protect his property without any loss of these rights which exist under the present law. In fact the proposed law gives the owner or tenant the sole right to post the land.

Looking at the problem from a logical standpoint there are many things we can do, hunters and landowners alike, to eliminate strife where hunting and fishing are concerned. We in North Dakota are justly proud of our state. Let's not hold ourselves up to ridicule.

To lead the list of states where serious trouble exists is not an enviable goal.

1. If you must post your land post only those areas where it is necessary to protect your property. And while you are at it why not use something like this. "No Hunting Without Permission" instead of "No Hunting."

2. Don't put all hunters in the same classification even though you may have had unfortunate experiences with some. Remember—the good sport will respect your sign and the outlaw will sneak in the back way if you post.

3. Don't listen to idle rumors about hunters destroying property. Be sure before you blame.

4. Whenever possible go ask the landowner for permission to hunt even if the land isn't posted. Give him a chance to point out the areas where he would rather you didn't hunt.

5. Don't go around looking for illegal posting as an excuse to hunt on the land.

6. Respect the property of the man on whose land you hunt the same as you would expect him to respect yours.

7. Work together in building wildlife habitat and carrying out other programs for your mutual benefit.

8. Respect the individual rights of each other.

9. Be slow to accuse one another of neglect, carelessness and the thousand and one other things which bring about hard feelings.

10. If you see hunters abusing their privilege by destroying private property, you as a good sportsman should make it your job to see that he is made to pay.

11. Make the Golden Rule your hunting policy.

—North Dakota Outdoors.

QUAIL-TO-ORDER

Mrs. Elsie Dunton, who lives on a farm with her husband near Rockdale, Texas, was thinking of the frown that would be on her husband's face when he saw the meat dish she was cooking for the evening meal. He didn't like liver. But she didn't have any other meat.

Suddenly there was a splintering crash. Bits of flying glass filled the air. Mrs. Dunton jumped back from her cookstove. She emitted a startled exclamation and threw up an arm to shield her face. The shattered window lay in bits on the floor.

Mrs. Dunton started looking around the room. Then she saw it. A full grown quail lay by her frying pan on the stove. It had flown through the window and was killed by the impact. Mrs. Dunton smiled, dressed the bird and plopped it into the frying pan.

Partridge was her husband's favorite meat dish . . .



Here's proof that floundering is one of the greatest sports if you know how, when and where. These 70 were taken by Howard Thomason (left) and Jim Tennison in Calcasieu Lake. The biggest ones weighed about four pounds each.

how to REMOVE A FISHHOOK

By John T. Bickmore, M.D.

DO YOU'VE caught a fishhook in your finger! What are you going to do about it? Chances are the first thing you'll want to do is to stick the bleeding finger into your mouth. Well, don't! The mouth, filled with virulent microorganisms, is the worst possible place for a fresh wound. If you are out on the water or wading in a stream, simply stick your hand in the water, whether the wound is bleeding or not. Cold water will wash the wound and eventually stop the bleeding, and the water is cleaner than your mouth.

Let's say that you merely have a puncture wound from the sharp end of the hook which didn't remain in the wound. After your hand has been washed in the lake or stream water, wrap a clean handkerchief around it until your hand dries. By that time a crust of serum will have hardened in the wound, and it won't become dirty. Then the bandage may be removed.

Later, if your finger is sore, red, and arm and is beginning to throb, infection is surely setting in. If such is the case, soak the whole hand in hot soapy water, as hot as you can stand, for at least an hour. Look up a doctor if one is available.

Once again, almost all the simple punctures will stop bleeding and will seal themselves without infection if you'll wash them in water, cover them, and keep your fingers out of your mouth. I have stuck myself dozens of times and never had an infection by observing these simple procedures.

If a hook penetrates anywhere else on your body, treat it the same way. Chances are that you'll be hooked either on one of your hands or on your face since these are the commonly exposed areas of your body. However, during the hot summer months many anglers fish in brief attire

in the hopes of soaking up a little Vitamin D, but between overexposure to fishhooks and the sun, this practice is not advisable.

The most dangerous and disastrous place you can be hooked is in the eye. Anyone hooked there had better make tracks to the nearest medical doctor or an eye specialist (ophthalmologist) if one is handy. There is no use dwelling on this further, for I don't advise ANY self-treatment or ANY first aid on the eye. But by all means, see a doctor immediately.

Let's say you've been unfortunate and have a hook imbedded deeply with the entire barb buried. Here's where common sense is important. If the hook is a small one, it may be better to pull the hook out directly, even if the barb tears the flesh and more bleeding occurs. However, if the hook is large, it is better to force the point out through another area of the skin, cut off the shank of the hook with pliers, and then grasp the point with the pliers and "thread" the curved part of the hook on through the wound (see diagram). This is a painful maneuver, but will cause less loss of tissue and less scarring as the wound heals.

Infection is always indicated by the signs of inflammation—local warmth and redness of the infected part, plus pain and swelling. When you get an infected finger, rest your hand as much as possible and don't squeeze the infected portions.

When you pull a hook out of a wound, always examine the hook carefully and see if it is all there. This may be of importance later on, since foreign material almost always causes infection. Buried material down in the wound will usually be extruded during the healing. If not, have your doctor remove it.

You can help yourself by soaking the infected part in any hot solution that is

properly prepared. I have mentioned only hot, soapy water—merely because it is easily available, and no one can go wrong in its preparation. Besides, a better cleansing agent than plain old-fashioned soap has never been found. This holds true in the wilderness as well as in a university hospital.

A warm salt solution will also do the job. A doctor refers to this as a "normal saline." To prepare saline, dissolve one level teaspoonful of table salt in one pint of freshly boiled water; this solution closely approaches the composition of body fluids and if sterile could be used to bathe or soak any wound.

After soaking your finger or hand in the solution, wrap it in a clean cloth and leave it alone. Use a sling if you can. As long as the inflammation persists, immerse the hand for an hour in hot saline or suds four times a day and continue to rest it. In this manner, one can successfully heal all except the most severe cases.

You'll notice that we've cared for these situations without any drugs or medical supplies whatsoever. It's better that you learn how to do it that way. The proper supplies are seldom available when needed anyway, and you can really get along without them if the few rules of cleanliness are followed. I don't advise self-medication at any time without the proper directions and simply pouring some antiseptic, or alcohol, or whiskey on a wound never has been found to be beneficial.

Concerning first-aid kits, I've seen them grossly abused more often than correctly used. Most of the time, the wounded individual merely breaks out his antiseptic, pours it into the dirty wound and then wraps the wounded part in a bulky band-

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FLYWAY MANAGEMENT FROM THE VIEWPOINT OF THE FISH AND WILDLIFE SERVICE

It is always a pleasure to meet with the members of the Western Association of Game and Fish Commissioners, particularly to take part in a discussion of the difficult business of managing the Nation's migratory waterfowl resource. There are many complicated features to the problem, and it is pleasing to note the interest, activity, and cooperation of all of the State Game and Fish Commissioners in the Western States.

There have been very significant changes in concept within the past few years—changes that can lead only to improved management of the resource. It was not long ago that State Administrators throughout the country held pretty much to the idea that responsibility for managing waterfowl rested solely with the Federal Government; few were willing to spend State funds or energies on ducks and geese, concentrating instead on those species the responsibility for which rested with the States. Now waterfowl management is an important part of the program of every State Department represented in this Association.

The Federal and State programs have been coordinated and correlated quite well, but improvements can still be made, and I am hopeful that Federal-State relations will continue to improve until we are complementing each other completely. Actually, there are so few of us charged with responsibility for protecting, managing, and perpetuating the wildlife resource that there is little excuse for us to be going in separate directions, wasting our energies fighting and bickering amongst ourselves while there are so many forces that affect adversely the practices and principles for which we stand.

In forecasting the effect of industrial and agricultural expansion on the various species of wildlife, waterfowl probably head the list of those that are in jeopardy. For many others, the situation is quite bright. The chief problem in big game management, for instance, is to hold the numbers down—to find adequate wintering range to overcome the periodic die-offs that occur in these Western States. Overpopulations often lead to the creation of firing lines such as we have seen in the Montana and Wyoming elk herds—distasteful to the American public, yet starvation is the only alternative.

When I look back over the past three decades, many instances of real progress in the restoration and management of big game resources in the Western States come to mind. There were not always the surpluses of elk and deer and antelope that we have now, but rather State administrators were desperately attempting to build up remnant herds. One of the first

(Address by Albert M. Day, Director, Fish and Wildlife Service, at Western Association of State Game and Fish Commissioners' Conference, Glacier National Park, June 17, 1952)

jobs assigned to me when I joined the Biological Survey in Wyoming in 1918 was to assist in estimating the number of antelopes still remaining in that State. These beautiful fleet-footed symbols of the prairie were on the verge of extinction, and conservationists throughout the country fully expected them to follow the trail of the buffalo. The survey revealed a remnant of less than 7,000 animals of the magnificent herds that once roamed the Wyoming plains in countless thousands. Now they have come back until they are actually a nuisance in some parts of the State. Recently I noted a press release issued by Lester Bagley to the effect that there will be 46,000 hunting permits issued by the Wyoming Game and Fish Commission this year. What a change, and what a tribute to good administration during the past 30 years!

For waterfowl, the long-range view is not at all optimistic. With good management, we can continue to have duck and goose shooting for many years to come, but agricultural needs are more competitive with the kind of environment that produces waterfowl than with that required by any other form of wildlife. Increased agricultural pressures, spurred by Government benefits, will undoubtedly continue to sap life-giving waters from the natural marshes in the agricultural and coastal States. The increased demands made each year by American consumers of agricultural products and the incidental commitments of this Government for the shipment of supplies to needy peoples elsewhere in the world result in the constant destruction of waterfowl habitat. Representatives of certain Government agencies continually remind the public of the need to expand agriculture by turning into crop and pasture uses lands which they now consider unproductive, but which in fact are the backbone of production for many species of waterfowl. A recent report issued by the Department of Agriculture states that since 1943 13.3 percent of the potholes of South Dakota have been drained. True, the construction of farm ponds and of water impoundments for irrigation, flood control, and navigation will provide some offset, but I am convinced that these will never replace the drained natural marshes.

The shrinkage of habitat on the breeding grounds is matched by its disappearance in the all-important wintering areas. Take California, for example. There the great Central Valley originally contained about

6,200,000 acres of natural marsh and constituted the wintering grounds for a large segment of the birds of the entire Pacific Flyway. During the past 50 years, more than 90 percent of this natural habitat has been reclaimed for agricultural uses, and this destruction goes on apace. High prices for cotton and rice are now converting even this small remnant of natural habitat into irrigated fields, while the State and Federal Governments combined are unable to prevent the wintering ground destruction that we see before our very eyes.

I mention this present trend not in the spirit of criticism but to point out the fact that we in the wildlife field must face the cold, hard fact that as agriculture expands the productive areas for waterfowl are bound to disappear. Conservation interests must never relax if waterfowl habitat is to be saved. Unless we are successful, I predict that it will not be too many years before the annual arguments about opening days, length of seasons, bag limits and other details of regulation will be of little or no importance. There will be nothing to regulate.

I am glad to see the Flyway Council looking at this grim picture realistically and banding together to assist in the preservation of existing habitat and in the development of new areas. You of the Pacific Flyway recently demonstrated this approach in connection with the proposed homesteading of lands in the Klamath Basin in northern California and southern Oregon. Tule Lake and the adjacent Lower Klamath Lake are located in the Klamath Basin, bisected by the State line. Much of the Basin is subject to development for agricultural use under Reclamation laws but with migratory bird refuges superimposed upon the Tule and Lower Klamath Lakes. The proposal to take land within the Refuge which are now in large share-crop grain acreages and divide them into homesteads poses a serious situation to waterfowl because of the loss of feeding areas and the depredation losses that would certainly follow. As a result of combined action from California, Washington, Idaho and Oregon, the homesteading proposal has been temporarily suspended, and the Secretary of the Interior has instructed the Bureau of Reclamation and the Fish and Wildlife Service to complete a joint study to determine a course of action which will best serve public needs.

Such problems should be the chief concern of the Councils. The Atlantic Flyway group, after several conferences, has developed a so-called blueprint of Waterfowl Management Objectives. Copies have been sent to all of the States. This is an endeavor to coordinate the State and Federal acquisition and development programs; a



Bass and white perch taken from near Jack Means' camp on Black Lake, near Camp Ti, La., by Mr. Kelly (left) and Mr. Spratt (right) of Dallas, Tex.

to encourage private individuals to do as much as they can toward preserving and improving essential habitat. I am hoping that all of the Flyway groups will follow something similar to this pattern and that within a year or so we may have a National waterfowl blueprint which will give better guidance in meeting the critical problems of the years ahead.

The recent large increase in allotments of Pittman-Robertson funds to the States has been most helpful and has had a large part in the changing attitude of the States toward waterfowl management. You will recall that in the early days of Pittman-Robertson the Congress appropriated specific amounts, the highest of which in the fiscal year 1942 reached \$2,750,000. Since that time, and largely due to the efforts of the International Association, Congress changed that policy and adopted language which now appropriates the entire income from the Arms and Ammunition Tax each year. Last year the figure was close to \$18,000,000. The States have spent roughly \$15,000,000 for the acquisition, development, and maintenance of waterfowl projects since Federal Aid was initiated 14 years ago. In fact, the Ogden Bay waterfowl project in Utah was Project No. 1 in the Pittman-Robertson program.

Not only are the States acquiring and developing areas, but they are also carrying on many useful studies designed to supply information needed for the making of the annual regulations. During fiscal year 1952, the States spent \$421,000 for waterfowl studies to obtain information useful in establishing regulations, \$158,000 for research in techniques of habitat development, and \$160,000 for dove and pigeon studies useful in establishing regulations. This makes a grand total of around \$750,000 of Pittman-Robertson expenditures to gather information useful in the determination of what the annual hunting regulations should be. The States have in general cooperated wholeheartedly in law enforcement, employing trained wardens far in excess of the number of Federal agents in the field.

While speaking of expenditures, I should also tell you that the Fish and Wildlife

Service last year obligated more than \$6,750,000 for waterfowl—funds derived from general appropriations, from Duck Stamp sales, from reverted Pittman-Robertson monies, and from Federal Refuge receipts. This money was used for enforcement, acquisition, development of refuges and management areas, and for research. For this year we have set aside one million dollars of Duck Stamp funds for land acquisition, plus \$250,000 of Lea Act monies in California.

Approximately \$8,500,000 of public funds are now being spent annually by the States and the U. S. Fish and Wildlife Service in the combined waterfowl programs. If there is any better proof of the need for close coordination to insure that every dollar spent will result in the highest possible return, I would like to have it.

The Service recently realigned its organization to serve better the needs of flyway management and to achieve the kind of coordination that seems essential. For years the Research Branch of the Service has been developing methods of collecting and analyzing data concerning migratory birds. The approach has become quite standardized in so far as the assessment of winter and summer population trends is concerned. We feel that that kind of research has now emerged into the field of practical management.

Last January the decision was made to combine the standardized observational functions of the Service with the activities of the Branch of Game Management, the unit that has long been responsible for enforcing the regulations and for handling depredation problems. It is entirely logical that combining these two activities should result in closer coordination between fact-finding and the enforcement of the regulations based upon those facts.

The enlarged Branch of Game Management, at both the Washington and the regional levels, has one section giving primary attention to law enforcement, and another primarily to management. By management we mean the collecting, correlating, and assessing the wealth of information coming from all sources in each region. The regional management personnel are to be responsible for keeping informed of the results of Federal aid projects, of the observations of the refuge managers, game management agents, cooperative unit leaders, and all other sources supplying pertinent data. They will regionally supervise winter inventories, hunter bag checks, and the collection of kill data, which when combined with that collected by the Flyway biologists working on the Canadian and Alaskan breeding grounds will be assessed on a Flyway basis to be available at the time the annual regulations are under consideration.

To encourage further cooperation with the States and private organizations, we are making an adjustment in the advisory group that meets once a year with the



A morning's catch of black bass taken by H. R. Hunter, of New Orleans, near Seminole Pines, La.

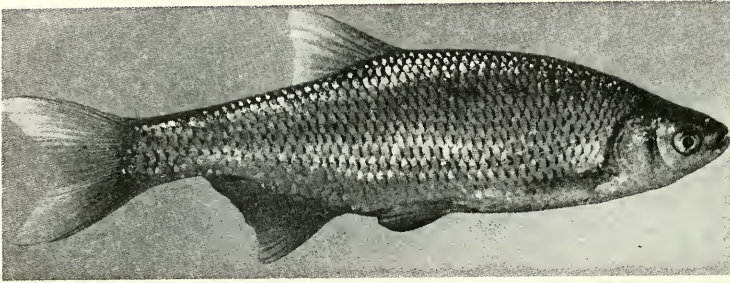
Service staff to discuss the forthcoming regulations. This will largely follow the recommendations of the resolution passed by the International Association of Game, Fish and Conservation Commissioners at Rochester last fall. Letters have recently been sent to two State representatives from each of the four Flyways, together with representatives of the Outdoor Writers Association of America, Wildlife Management Institute, National Wildlife Federation, Audubon Society, Izaak Walton League of America, and Wildlife Society, inviting them to meet with us in Washington on August 6 to review the proposed regulations and give us their opinions on this important subject. Others having knowledge of special problems such as depredations may later be invited to serve also.

This will mean no departure from the usual procedure of sending to the States for their consideration a summary of the latest data from the breeding grounds, together with our proposed recommendations to the Secretary, before final action is taken. We are merely attempting to so organize the Federal Service that we can work more closely with the States at the regional level on a year-round basis and that the States may have a greater opportunity to be of assistance in an advisory capacity at the time we actually sit down to develop the annual hunting rules.

I should like at this point to comment that relations between the Fish and Wildlife Service and Ducks Unlimited have been most amicable for some time, and I am hoping that this will continue. D. U. biologists are now working with the Canadian and United States crews in Canada. Methods of assessing population trends have been agreed upon between all interested parties, and I feel confident that so long as we can continue with our present approach there will be little need for the differences in predictions and expressions of abundance or scarcity which led to some of the past difficulties. I am most happy over the present situation with

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The Golden Shiner



IF LICENSE sales can be used as a measuring stick for the popularity of an outdoor sport, then angling is one of the most popular forms of recreation for the people of America.

The increase in the numbers of fishermen has, of course, caused a corresponding rise in the demand for bait minnows. In many parts of the state, the bait minnow problem became critical some time ago when the supply of wild minnows from local streams was not great enough to meet the needs of anglers. Fortunately, fishermen no longer have to rely entirely on wild minnows for their bait supply, for millions of minnows are now raised annually by commercial producers. Since the golden shiner spawns prolifically in ponds and grows rapidly to bait size, it is a favorite with bait producers in many parts of the country.

The golden shiner is also known as the bream or roach in some parts of the country. There are at least three subspecies, but the western golden shiner, *Notemigonus crysoleucas auratus*, is widely distributed throughout eastern United States and westward to the Dakotas and Texas. Throughout its range it prefers quiet, weedy waters in shallow lakes and ponds, and, although it is often found in streams, it seldom occurs in fast waters. This minnow is not especially particular about living in clear water, for it sometimes occurs naturally in large numbers in the muddiest and most uninviting pools.

Many anglers are familiar enough with the golden shiner to recognize it readily. It is an attractive minnow with a greenish back, golden colored sides, and a brassy belly. Its body is flat and nearly elliptical, and has a rich golden sheen, particularly in the larger adults. Its mouth is small and slightly upturned; the scales are loose and easily visible; the lateral line is deeply decurved; both dorsal and anal fins are sharply pointed; and there is a sharp ridge or keel on the belly between the pelvic and anal fins.

Both sexes of this species reach maturity at the age of one or two years. In the northern part of their range, the spawning

By Ralph Burress
season extends from May until August. In the southern edge of their range, spawning may occur from late March until late October. However, heavy crops of young are produced only during the spring. Breeding males often may be distinguished from females by their smaller size. In addition, their sides are rough with minute tubercles during the breeding season.

When spawning takes place, the extremely adhesive eggs are deposited on submerged plants in quiet water and left unguarded. The eggs hatch in a few days, and the young commonly swim about in schools. If there is an abundant supply of food, the young may reach a length of four inches by the end of their first summer of life.

In uncrowded conditions, adults often reach a length of eight inches. The maximum size attained by golden shiners is about 12 inches and a weight of one and one-half pounds. The oldest of the species have been known to live for as long as eight years. Large individuals are excellent bait for bass and pike, and the small specimens are equally good for crappie and sunfish.

Mother Nature has equipped the golden shiner with very efficient alimentary structures, and its range of food resources is wider than that of most other minnows. The young feed on algae and tiny animals such as rotifers and water fleas. The adults are known to eat young fishes, insects and insect larvae, algae, mollusks, crustaceans and vegetable substances.

Since a pond is capable of producing only a certain amount of food, the growth rate of fish is dependent in large measure on the rate of stocking. If relatively few fish are present, they grow at a good rate, but if the pond is crowded with fish, they grow at a much slower rate. It has been found that best results can be obtained by stocking adult shiners at a rate of 100 per acre. Under good conditions, an acre pond may be expected to produce 6,000 of these minnows from three to four inches in length or a greater number of a smaller

size in a single growing season. As many as 20,000 minnows per acre of water have been produced in some of our experimental ponds. Fortunately, golden shiners seem to be able to withstand severe winter conditions, including abnormally low oxygen supplies. Experiments conducted in Minnesota indicate that at freezing temperatures this fish can live with very little oxygen, although at higher temperatures it requires as much oxygen as other fish.

Although the culture of golden shiner may prove to be profitable, it is by no means without its pitfalls. Infestations of parasites may reduce production markedly in certain seasons, and there is always a possibility that fungus infection or fin rot may cause extensive mortality. Furthermore, the species requires careful handling.

Records of 336 reporting bait dealers and 29 reporting wildlife breeders show that about 18 million minnows (exclusive of goldfish) were sold by them during 1949, most of which were blackhead minnows. Although this appears to be a tremendous number of fish, there are still areas where supply has not kept pace with the demand.

—Courtesy Missouri Conservationist

\$10,000.00 SHOTGUN

A 16 gauge double, that was presented to the late Field Marshal Hermann Goering by the Krupp Company, is now being shown at sportsmen's shows all over the country. The gun is insured for \$10,000. It is subjected to constant handling, yet the hydrostatic action of perspiration (ol enemy of gun owners) has no effect on the beautiful finish of the piece. How this was accomplished without a grease coating (the finish was bone-dry) intrigued me.

Several inquiries later the answer came "There's a new rust preventive preparation on the market—the Silicote Gun and Tool Cloth. It's a silicone impregnate cloth that you just rub over the gun, stock and all, and it's safe for days from rust corrosion or scratches."

I was downright interested now and began to hunt out sportsmen who had used it. I found that they had actually "rubbed out" scratches on the stocks of their guns! The more I heard, from actual users, the more unbelievable it sounded!

What does it all mean? Simply that the average sportsman can now give his gun the care once reserved for museum and very costly firearms. It is just being "discovered" by sportsmen all over the country. Once a discovery is made, they never let it go! One quick application of this non-greasy preparation protects a gun for an entire storage season, or several days in the field. The dry coating is not affected by temperature or even salt air. It doesn't collect dust or dirt. It's the dad-burned thing I ever ran across!

OUTDOOR NOTES

By Joe Austell Small

THE fact that a fish can fly is one of the most astonishing facts of nature. Actually, the flying fish glides. The wings are never actively flapped. In using their wings as planes, these fish make the nearest approach in nature to flight on the principles used by man. They are similar in general form to aeroplanes and must obey the same aerodynamic laws.

Photos have shown that the flying fish is almost exactly horizontal as it emerges. As soon as it is in the air, the pectorals are expanded, the pelvis being still held close. This results—since the tail is less supported than the head—in the body taking on a considerable angle to the horizontal, the large ventral lobe of the tail remaining in the water. For a second the fish taxis along the surface in this position. As it does so, it vibrates its tail actively in the water at about fifty beats per second, thereby increasing speed until airspeed is reached. Various estimates of

this speed have been made—as low as 35 and as high as 55 miles per hour.

When airspeed is reached, the pelvis are expanded, and the tail is lifted from the water. In this position the fish glides at a nearly constant height of a foot or two above the water, losing speed all the time. The usual glide may last 3 or 4 seconds but often is much shorter. However, glides of 10 to 13 seconds have been recorded.

Desert Fish Maybe

A passenger train was rumbling past the fire station in suburban River Forest near Chicago. Passengers glancing out the windows suddenly jerked erect and pressed their noses against the panes.

They saw six firemen in a boat. Two were rowing. The others were trolling—fishing in the dry, dusty grass near the tracks.

The train thundered on. Picking up their skiff, the firemen went back to their station to plan another act for tomorrow.

Worm Turns

Up cash, that is. Mrs. Polly Lund, of Salt Lake City, Utah, is making good money now from what started out as a hobby. Her hobby had been messing with red angle worms. Her method of raising them was so successful that she went into the business big time.

Mrs. Lund mixes four equal parts of peat moss, topsoil, manure and vegetable matter such as leaves, grass, etc. She puts this mixture into small crates and keeps them in a warmish, dark places. Their food is lettuce and cabbage clippings, potato peelings and other fresh kitchen castoffs.

Last year, when the fishing season opened, she had 100,000 big, lively red angle worms for sale.

You can get the complete story by dropping a card to Silicote Corporation, Oshkosh, Wisconsin.

Rod Guide Repair

Cracked or roughened fishing rod guides cause frayed lines and lost fish—usually a large one. Rough guides can be smoothed with a bit of very fine emery paper wrapped around a match stem. If the guide is cracked and beyond repair, re-

FAVORITE ARTIFICIAL LURES AND NATURAL BAITS

SPECIES	FLY ROD LURES Surface	FLY ROD LURES Sub-Surface	CASTING LURES Surface	CASTING LURES Sub-Surface	NATURAL BAITS
 LARGEMOUTH BASS	 BASS BUGS SIZE - 2, 1, 1/2  BIVISIBLES SIZE - 6, 4, 2  HAIR MICE SIZE - 4, 2, 1	 SPINNER  PORK RIND STREAMER  METAL LURES	 PLUNKER  JITTERBUG  INJURED MINNOW	 LAZY IKE  FLAT FISH  RIVER RUNT  PIKIE	 FROGS  MINNOWS
 SMALLMOUTH BASS	 POPPING MINNOWS  HAIR FROGS	 STREAMER  SPINNER-PORK RIND  METAL LURES	 SPINNING SIZED PLUNKER  CRAZY CRAWLER	 SMALL LAZY IKE  WEIGHED STREAMER	 MINNOWS  FROGS  HELLGRAMMITE
 BLUEGILL	 POPPING BUGS SIZE - 12, 10, 8  DRY FLIES SIZE - 16, 14, 12  BIVISIBLES SIZE - 14, 12	 NYMPHS SIZE - 12, 10  WET FLIES SIZE - 12, 10  STREAMERS SIZE - 12, 10, 8	 (TAKEN ONLY RARELY)  WEIGHED POPPER	 SMALL LAZY IKE  SMALL DARE-DEVIL	 EARTH WORMS  CRICKETS  CATALPA WORMS
 CRAPPIE	 BASS BUGS SIZE - 6, 8  MAY FLY SIZE - 8, 10	 SPINNER-FLY STREAMER  TIN-LIZ	 TAKEN ONLY RARELY	 WEIGHED STREAMER  SMALL LAZY IKE	 SMALL MINNOWS  FRESH-WATER SHRIMP
 YELLOW PERCH	 (TAKEN ONLY RARELY)  DRY FLY	 SPINNER-PORK RIND STREAMER  METAL LURES	 PRACTICALLY NEVER TAKEN	 BABE-ORENO  LAZY IKE  SMALL SPOON	 SMALL MINNOWS  EARTH WORMS

D. RAY

place it and save dollars on new lines during fishing season.

Short Snorts

The bat's wing is equipped with a hook in the form of a claw. This enables it to cling to walls, rocks and trees. From this position the bat takes flights. Without this hook, the little mammal would be helpless.

The anteater's tongue is fastened to his breathbone.

The female sea-horse deposits its eggs in a small pouch on the body of the male.

Trap doors, hinged with silk, guard the entrance to the silk-lined burrow of the trap door spider.

"As scarce as a frog's hair" is an old expression. But the *Trichobatrachus Robustus* is one frog that has skin filaments closely resembling hair.

Strange Battle

One of the strangest outdoor dramas he'd ever heard of was witnessed by Game Ranger Henry Stotts of the Arizona Game and Fish Commission. Stotts was patrolling near Blue Point on the Salt River when he heard a commotion in the brush.

Upon investigating he found four badgers locked in mortal combat. These normally shy animals were so ingrossed in their fight that they paid no attention to Stotts. He watched the battle for twelve minutes from a distance of only fifteen feet.

Stotts said the fight appeared to be a free for all—every badger for himself.

When he finally stepped in to break up the melee, all four animals were covered with blood. As they scattered, one was dragging a broken leg.

Four Deer at One Whack

When an auto, driven by Howard Yount, plowed into four deer near Bloomsdale, Missouri, it killed all four of them, two adults and two yearlings—all bucks.

Neither Yount nor his wife were injured, although it wrecked their late model Chevrolet.

Sand-Swimmer!

There is a three-eyed desert lizard that dives and swims in the sand almost like a fish in water. University of California scientists reported that this lizard had to learn to vanish rapidly in the sand because it is a frequent morsel for roadrunners and badgers.

Famous Last Words!

To the already long list of famous last words, we would like to add one more phrase: It is "Howdy, Cuzzin'!" when spoken in Goose gabble by a fat old gander as he lights among a set of Dunster's Dupe-A-Goose decoys!

They are the dad-gumdest, "naturalist" looking decoys on the market today. Some say that they look more like a goose than a goose does himself! Well, they ought to—they're the only decoys produced from natural photographs.

Roy Dunning was telling me about the new Snow Goose that Dunster has perfected in feeding position. This new one is fully as dependable and perfect as the now famous Canada, Blue Goose, and Specklebelly models.

Hunters like the spreader hinge. You can carry the lightweight, folded decoys easily. Then, when you're ready to set them out, the spreader hinge makes the decoys full-bodies and life-like with a snap.

"Use eight or ten Dupe-A-Goose feeders per dozen decoys set out," advise the experts. "When a flock sees that many feeding, they come in for chow too."

For a free folder of tips and data on the entire Dunster line, drop a card to Dunster Sporting Goods Company, 16824-W Pacific Highway, Seattle 88, Washington.

Odd Duck

N. B. Dixon of Kingfisher, Oklahoma, wants to know when a duck stops being a duck. He has three English Call ducks. Once they were used by hunters as live decoys. A few months ago his flock consisted of one drake and two hens. Now he has two drakes and one hen. An amazing change is taking place in one of the ducks. She is sprouting a "drake's tail". Other markings of the drake—a white ring about the throat, a green head, and a reddish-brown color of the chest—are showing up. Her voice has shifted from the loud nasal quack of the female to the raspy call of the drake.

Rabbit Fever

It is estimated by the U. S. Wildlife Service that 1 percent of our total wild rabbit population is infected with tularemia, or rabbit fever, as most people call it. A person may catch the disease by handling infected animals or by eating game that has not been thorough cooked. Ninety percent of the human cases are caused by rabbits. However, insect bites, squirrels, opossums, quail, sage hens, coyotes, deer, red foxes, bull snakes, ground-hogs, muskrats, domestic hogs, skunks, cats, dogs, sheep, and rats have been recorded as sources for tularemia in man. Five percent of the human victims die from this disease.

Short Snorts

The dyerbock, an African antelope, when aware that it is observed, will crouch in the grass as if to lie down, then crawl away for several yards and make a dash for safety.

The earliest known member of the giraffe family was much smaller than the present animal. It had a shorter neck and was less than six feet high at the shoulder.

The orange-colored lenses of the prairie dog's eyes act as filters, permitting this rodent to withstand the sun's intense glare.

A newborn bear cub is smaller than a newborn baby porcupine.

REMOVING FISH HOOK

(Continued from Page 19)

age that he soils as he puts it on. Just use a little common sense. If that antiseptic is strong enough to kill bacteria it might also kill delicate tissue cells, so use the antiseptic sparingly and only AFTER you've washed the wound. Then put on a light, loosely fitting, clean bandage.

How do you know your treatment has failed and a dangerous inflammation exists? The signs of severe, advancing formation of pus can be present as early as the end of the second day after the initial injury. Tell-tale red streaks (lymphagitis) may be seen ascending the hand or arm closest to the injury. Loss of function always occurs—movement of the finger or hand is extremely painful. The back of the hand is swollen and fever is present. If ANY of these symptoms or signs occur, better terminate your fishing trip and plan to see a physician as soon as possible. A deep-seated abscess is probably forming which should be incised and drained. Don't do this yourself.

Just when are you most likely to be hooked? I've seen it happen most often while disengaging a plug from a fish's mouth after he is hauled aboard.

You are just asking for it when you stick your bare fingers down the mouths of any of the toothed fishes such as wall-eyes and pike. Oddly enough, these are also the species which swallow a lure a good distance. Sets of triple-gauge hooks in the mouths of these fish are treacherous. It's more sensible to use pliers than fingers.

In a boat, that guy with the wild side-arm cast is the most dangerous, so keep away from him. A side-arm caster is a lazy sort of rookie anyway. If he can't learn the simple over-the-shoulder accurate flip, then don't fish with him. Make him fish alone till he learns.

Watch this business of fishing three in a boat, especially if all are casting. If this is going to be the situation, you'd better all be over-head casters and have a pre-arranged pattern. Everybody should toss to a consistent side, so the back flip will not snare the man behind you. If your fishing colleague is using a fly rod stay to the side or in front of him. It's amazing how far the back-flip of the line (and hook) will sometimes go and the fly caster is never looking behind him. Hooks from flies are small, sharp, and will bury deep. Of course, it is possible to hook yourself, too.

Why all this detail and caution over a trivial fishhook wound? Besides the pain suffered by the hooker, a serious hook-infection can cut short a long-planned trip and you can bet it will happen when the fish are really biting. And brother—that's catastrophe.—Outdoor Nebraska.

HUNTING---FISHING GETTING BETTER

By Arthur Van Pelt

WITH reports arriving almost daily from the Canadian prairies to tell of excellent crops of young ducks and geese and giving promise of good shooting ahead, and additional reports of prosperous conditions in the field of upland game, attention is now directed to predictions made by veteran anglers of the southern coastal sections of vastly improved fishing in our coastal waters for several seasons ahead. Their predictions are based on the unusual abundance of young game fish—speckled trout, white trout, croakers, flounders and the like—in the larger lakes and bays adjacent to the Gulf Coast.

More than casual inspections and observations, made in Lake Pontchartrain, Lake Borgne and other large open water areas in southwest Louisiana; in Barataria, Timbalier and Terrebonne Bays in the south-central portions and in western waters recently have disclosed the presence of great numbers of small trout, four to six inches in length. Small flounders by dozens are brought up in every haul of even the small bait trawls used by most fishermen. Croakers, in numbers not seen for many years, are being caught in all the larger lakes.

Myriad small bait fish—menhaden, silversides, and shad of several species, as well as shrimp—are in all of the waters, while tarpon, jack crevalle and sharks, among the larger fish, are plentiful in most of them.

"Barring heavy freezes during the winter months we should have the finest of fishing for several years," said Frank Swanson, of East End, Jefferson Parish, after checking the waters with this writer recently. "Not in twenty-five years or more have I seen the abundance of small game fish in Lake Pontchartrain that are here at the present time."

Problems of wildlife affecting its very existence are found in every part of the country. Something seems constantly to threaten life or general prosperity. Some of these problems are the results of most unusual and improbable chains of circumstances. Witness just one such happening that occurred up in the Province of Ontario, as reported by the Wildlife Management Institute.

An investigator for the Ontario Department of Lands and Forests sent out to check on a forest fire found that a bull moose, which mistook the blast of an air horn on a diesel locomotive for the challenge of a rival bull, climbed on the railroad tracks to do battle. The engineer threw on brakes and oil from a gondola car sprayed the tracks. A bit of the burning oil landed on a mouse's nest on the shoulder of the roadbed and in a moment a forest fire had started and burned over

a large area of forest and game habitat.

This wildlife business is indeed complicated.

Nesting habits of woodcock are still mysterious, just as is the tremendous increase of the species during the years since the fatal winters of 1939-40 when perhaps two-thirds of their total number died of starvation owing to the freezing of the ground southward to the shores of the Gulf of Mexico.

Woodcock are known to occasionally breed in all of the eastern states, from Canada to the Gulf. A nest with two eggs was found in St. Tammany Parish in January, 1951. A few weeks ago *Outdoors South's* editor saw a mature woodcock in a swamp area of the same parish as it flew across a major highway directly in front of his car. Undoubtedly a nesting bird, this.

Another rare summer resident, especially of the south Louisiana parishes, is the robin. First record of its nesting in New Orleans came in early May, 1952, when Earl Smith, New Orleans naturalist, found a nest and young in a tree in an uptown residence district. Now the same industrious pair of robins has just finished bringing forth its second brood of young redbreasts in the same area, but a block or so distant from the location of its earlier nest. Apparently the robins like the neighborhood and the welcome given them there by the residents.

One of south Louisiana's popular summer fishing events, the Southwest Pass Tarpon Rodeo, will not be held this year, in its original form as an open rodeo, at least. Difficulty in providing accommodations for the many sportsmen wishing to enter the event is given as the reason.

DROWNING MONTHS

(Continued from Page 4)

ture and danger are found in varying degrees, wherever water sports are found.

They still talk of the young soldier who while honeymooning took his bride of two days for a boat ride. Somewhere in the center of the lake he decided to have a swim. Abdominal cramps—and a young widow was left sitting alone in the boat.

Most people wisely refrain from swimming in the middle of a large lake, yet these same people may overcrowd a small boat and the result is the same. There are laws concerning the capacity of hired boats and most boat livermen respect them. Common sense alone governs the capacity of private boats and "common sense afloat" is often a scarce commodity.

Of all the dangers of boating, capsizing and swimming are the prime killers. They need not be.

A wooden boat will not sink (nor will a metal one with air compartments). Although almost totally submerged, such a boat will support several people. This is a vital thing to remember if the boat has capsized in a squall and the water is running rough. Cling to the boat as if your life depended on it—and it does. Do not try the deceptively easy swim to shore. The death toll proves it is farther than you think. Wait for help to come.

The "do's" and "don'ts" of boating are not hard to figure out and there are not many of them. Don't overload your boat; do know its capacity. Never stand up in a boat or canoe; do raise the anchor while seated. Don't change positions in open water; do row to shore and change there. Don't try to ride out a storm; do strike for shore when storm clouds gather. Don't take chances with non-swimmers; do require that they wear life jackets in small craft. Do determine the capacity of your privately owned boat. Call your nearest state conservation officer or lake patrolman for this information.

Above all, if you get into trouble, don't leave the boat! Although it may be barely afloat, it is the best bet you have. The water is not your element. You belong to the land with which your boat is the only link. Do not break that link. Stay with your boat!

FLYWAY MANAGEMENT

(Continued from Page 21)

Ducks Unlimited.

I should like to repeat what I stated at the beginning—that the management of the waterfowl resource is a challenge to all of us and that we must work together as a team with as little bickering and quarrelling as is humanly possible. It must be remembered that the primary responsibility for waterfowl regulations rests with the Federal Government under treaties with Canada and Mexico. We propose to carry that responsibility, but we see no reason why the States should not participate, not only in the matter of the development of habitat but also in gathering information and assisting in the assessment of the data so that better regulations may result. I am hopeful, however, that these Flyway Councils and Flyway organizations that have come into being within the last year or so will not spend all of their energies and efforts on the mere matter of regulations. Regulations are temporary. They adjust the take to the supply year by year and should be considered on that basis alone. Seasons and bag limits may be liberal in times of plenty and restrictive in time of scarcity. So, while they do have the greatest appeal to the individual duck hunter, from our

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ACCENT ON YOUTH

PRACTICE makes perfect, but you do not have to be a gray-beard or even a seasoned and experienced hunter to become an excellent marksman. Shooting, in its many forms with shotgun, rifle or handgun, is a sport that can be enjoyed by man, woman, boy and girl alike. And one in which youth can become highly proficient.

This fact was graphically demonstrated at the recent Great Eastern Skeet Championships at Lordship, Conn., when only four perfect 100 straight scores were posted—and three of the four were turned in by teenage shooters.

Fourteen-year-old George H. Hodges, Jr., of Jacksonville, Florida, recognized as one of the top flight skeet shooters in the country, highlighted the three days' match with a shooting exhibition that will long be remembered. The tall youngster broke 100 straight targets in the Great Eastern Preliminary to tie with the veteran George Deyoe of Washington, D. C. In the shoot-off, he nosed out Deyoe after firing five extra strings, marking the first time this event was ever won by a junior shooter. Young Hodges also garnered runner-up honors in the Junior Championship with a score of 99x100. The winner was 16-year-old David Robb of Buffalo, New York, with a perfect 100x100. Hodges had come to the Lordship shoot fresh from his victory in the Great Western at Chicago when he turned in the only perfect century score under adverse weather conditions. He is also a member of the Jacksonville Gun Club team that set a new world's record five-man team score of 991x1000. Coupled with his father, he is also co-holder of the two-man team record with 398x400. Pretty fair shooting for a 14-year-old!

Continuing junior domination of the early part of the Lordship tourney, 16-year-old Bobby Smith, Silver Spring, Maryland, crackshot, won the 20 gauge championship against a field of the

country's leading skeet shooters of adult age. Bobby turned in the only perfect 100x100 score in the event. He also holds the national junior title.

Richard Baldwin, Danbury, Conn., is another youngster who is ranked as the "Whiz Kid" of the trapshooting sport. The 15-year-old gunner has, in the past two years, amassed a string of trapshooting victories as long as your arm. In 1951 his average for 2950 registered 16-yard targets was 91.93%, and 89.2% for 1400 registered handicap targets shot from the 18 to 22 yard markers. In addition to being runner-up in the New York Athletic Club's 16 yard and handicap championship events, he won the Junior Clay Target Championship of America with a score of 191x200. During the Grand American trapshooting tournament at Vandalia, Ohio, he won the Sub-Junior Championship, was runner-up in the Junior Champion of Champions race and won the Junior Championship in the Pre-Grand event. This year Dick's shooting has been even more spectacular. He has won the New York Athletic Club's Handicap Championship, the All-Around Club Championship on singles, doubles and distance targets, the Junior Championship of America, the Distance Championship of America, and the All-Around Championship of America at singles, doubles and distance targets. In addition he has "copped the coin" in a number of other events of less importance.

The shotgun sports are not the only shooting events in which the juniors occupy a spot in the sun. Out Phoenix, Arizona, way are two teenage rifle experts who are puncturing bull-eyes with amazing regularity. They are Leonard Brewster and Charley Rogers. Young Brewster recently won the high aggregate in the any sights matches with a score of 1598x1600, with 117 X's which is sparkling shooting in anybody's book. He also took down first honors in the aggregate score column in the metallic sights matches with 1594x1600, 113 X's, giving him a high total in the grand aggregate of 3192x3200, 230 X's.

Charley Rogers was not far behind his team-mate. He won the 50 yard any sights match with a perfect 400x400 score and 38 X's, the Dewar Match with another perfect 400x400 score and 32 X's and the 50 meter metallic sights match with 399x400 and 25 X's.

These are only examples that prove the fact that interest and enthusiasm play large roles in expert marksmanship. Given these two qualities, any youngster is off to a good start and, with proper training, will soon catch up with more experienced competitors. Experience is a mighty fine asset in a rough-and-tumble shooting match, particularly when important shoot-offs are involved. But the level-headed youngster is usually free of the jitters or jumpy nerves

that so often beset the veteran . . . and that fact is all to his credit. Truly, shooting is a sport for everybody.

LITTLE THINGS THAT COUNT

By HOMER CIRCLE
James Heddon Sons, Inc.

SINCE we are smack-dab in the middle of the fishing season, which means half of it is already behind us, it's time for us fishermen to pay attention to the little things that fool big fish.

Too many /shermen carefully plan only the big things like wangling the time to go fishing, locating a boat, place to fish, out-talking the wife, etc., and neglect to remember these tidbits which Heddon's staff of experts point out as "all important to him who would mess up a skillet."

ACCURACY . . . Learn to be an accurate caster. Overshooting or undershooting the target not only louses up the good holes but it tears down your estimation of your own fishing ability. Gain confidence in yourself by developing accuracy at home, in your back yard, or in your parlor. Pick out any target and cast at it until you can hit it without thinking about fundamentals. Once you have mastered accuracy you have surmounted the greatest obstacle facing most fishermen.

STEALTH . . . The Indians used this more than accurate shooting in killing game. A fisherman must do the same, he must actually stalk the larger game fish. Wear dark clothes, stay down in the boat, and be super-quiet when approaching a likely hole.

Fish are alarmed by your stumbling against rocks, splashing the oars or anchor, scraping the tackle box on the bottom of the boat, running the outboard motor too close to where you intend to fish, or squeaky oarlocks. In other words, avoid vibrations. **THE ONLY NOISE A FISH SHOULD HEAR IS THAT OF YOUR LURE FALLING ON THE WATER!**

CHOOSE LURES WISELY . . . If you are fishing in weedy waters, don't use a lure that is constantly hanging up. Try an ace spoon or a stanley weedless hook with a pork chunk. Don't use a shallow running lure in deep water, put on a go deeper river runt that will dive down to where the fish are feeding.

If the water is calm, try a topwater chugger and vary its action. First try a noisy retrieve, then a fast one, then a quiet, slow one. Try to give the fish something it hasn't seen before in the way of a tantalizing action.

Try different colors. At times an all black lure will take fish when a black lure with white eyes draws a blank. Don't ask why, it's one of the unanswerable questions like, "Why are women's hats?"

FLYWAY MANAGEMENT

(Continued from Page 25)

point of view they are merely one of the tools of management. The important thing that we must never forget is that this sport of wildfowling is dependent upon the continuing availability of suitable nesting grounds, of resting and feeding areas along the migration routes, and of adequate wintering facilities. If we let these essentials slip from our grasp, all of the committees and all of the councils and advisory groups that we can put together will not make much difference. Conferences do not produce ducks—only Mother Nature, with our help, can do that job.



WHITE BASS!

CAVE LIFE

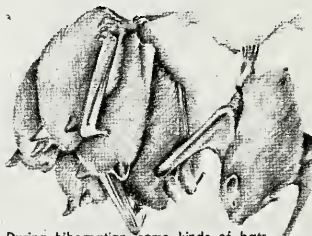
By CARL SCHWARTZ

Some bat species spend the winter hibernating in caves; others use caves only as daytime retreats during the summer and at night seek their insect food elsewhere.



In the black cavern quarters, bats guide their flight by a series of high-pitched calls whose echoes are detected by their highly-developed ears.

Caves and underground passageways, mostly cut in beds of limestone by the leaching action of underground streams, provide a peculiar habitat for animals. Here in constant darkness, animals live under remarkably uniform conditions of high humidity and moderate temperatures. Animals spending their entire lives in such cavities usually lack body color and may be totally blind. Other creatures are residents for part of the year or part of each twenty-four hours. Some animals live in the twilight zone at the entrance, some far back in the caverns, and others in the underground streams or pools of water. Because of the absence of light, green plants cannot exist in caves and only primitive forms like fungi and molds occur, providing scant plant food for cave dwellers.



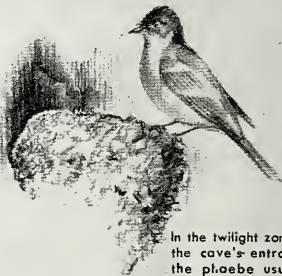
During hibernation, some kinds of bats gather into large colonies and thousands may cluster together in one chamber. Other species prefer a solitary existence and individuals sleep alone in small cracks.



In the absence of light many cave animals have become blind but make up for this loss by other organs of sense. The Blind Cave Crayfish has prominent sensory hairs on its claws which serve as organs of touch.



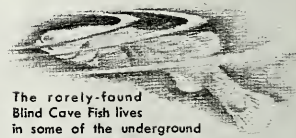
In the struggle for existence in this world of darkness, the blind often eat the blind. The sightless orthopod below is eaten by other sightless cave dwellers like the crayfish and fish.



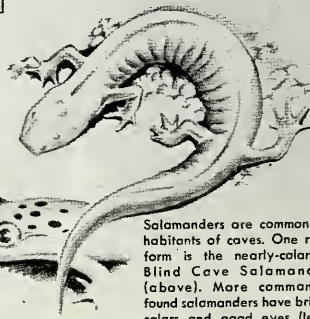
In the twilight zone of the cave's entrance, the plaiebe usually builds its characteristic moss and lichen nest.



Many caves are permanently inhabited by Wood or Trade Rats. These energetic rodents construct their bulky stick nests in the larger cracks and crannies about the cave's entrance.



The rarely-found Blind Cave Fish lives in some of the underground streams flowing through caves.



Salamanders are common inhabitants of caves. One rare form is the nearly-colorless Blind Cave Salamander (above). More commonly-found salamanders have bright colors and good eyes (left).